DCS Series Quantitative Packaging Scale

Operation Manual

目录

1. Controller general parameters

1.1 General specifications

Power supply: global universal power supply, DC24V power consumption: less than 10 watts, power supply filter: built-in Operating temperature: -20℃ to 40℃ Relative humidity: below 90% (no condensate)

1.2 Digital section

Display score: 1 / 1000 000 display: 0.1 0.01 0.001

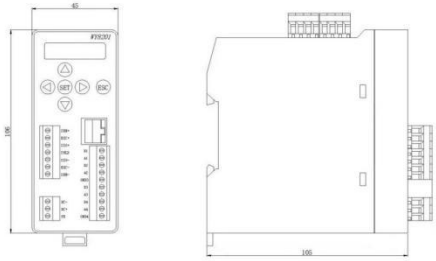
I / O output: external 24V (output valid for 23V,1.5A)

1.3 Signal part

Sensors: All resistance strain load and weighing sensors apply. Sensor input voltage: DC 5V, 200 mA (can drive 4350 Ω sensors) Minimum identifiable signal: 0.5 μ V Temperature coefficient: <1ppm / ℃ linearity: <0.005% Sampling: Delta-sigma Sampling speed: greater than 1000 times per second

2. Controller size and installation

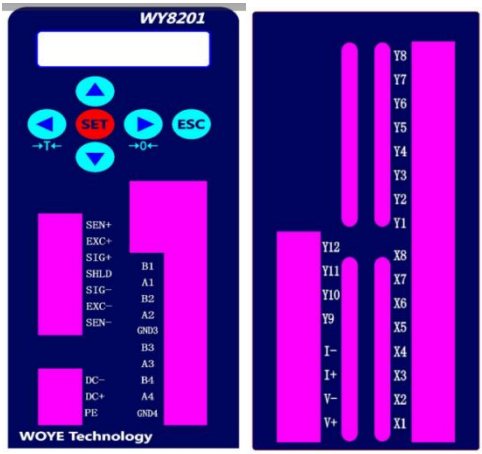
2.1 Dimensions



2.2 Installation

The controller is installed with 35 ㎜ rail buckle.

2.3. Controller wiring



2.3.1 Power supply wiring

24V + connected to DC +, 24V-connected to DC-, PE ground wire. This product uses DC 24V power, AC 220V power will permanently damage the instrument!!!

order number	name	meaning
1	DC-	24V negative electrode
2	DC+	24V positive pole
3	PE	ground lead

Number of connected 350 ohm weighing sensors	Line 24 (m)	Line 20 (m)	Line 16 (m)
1	240	600	1200
4 (Up to)	60	180	300

2.3.2, Sensor wiring

The controller can be connected to a first-way resistance-strain bridge sensor. When connecting multiple sensors, each sensor shall form a weighing signal through the junction box to the controller. The cable from the junction box to the controller requires a metal shielding layer. It is recommended to use a special shielding signal cable. The length of the longest interportable weighing signal cable of the controller is shown in the table above:

Defines the terminal of the weighing sensor interface for the controller

order number	name	meaning
1	SEN+	Feedback positive input
2	EXC+	Exciting positive output
3	SIG+	The signal is entering
4	SHLD	shield line
5	SIG-	Signal negative input
6	EXC-	Inspire negative output
7	SEN-	Feedback

		negative input

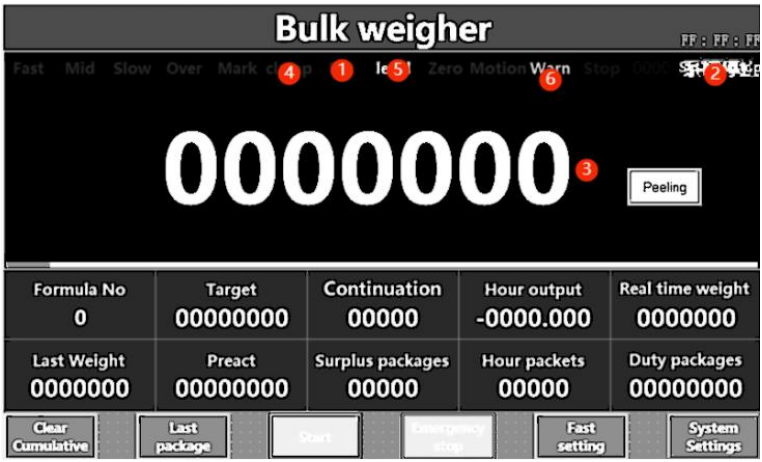
2.3.3 Communication and wiring

4-way RS-485 serial communication interface (terminal port A1 —— B4), serial port support: MODBUS protocol format.1 road ModbusTCP network port, because the communication input

A2 B2	Upper position computer 485 communication	A3 B3	Linkage to 485 communication	A4 B4	Frequter 485 communication

signal is analog signal, it is more sensitive to electronic noise, so the signal transmission should be shielded cable, and should be laid separately from other cables, and should not be tied together. Signal cables shall be remote from the AC power supply. A1 B1 is

a touch screen communication port.



In the multi-meter communication remote mode, the host A3 B3 can read all parameters of the subsidiary A2 B2 (address 1-8 address) and write the corresponding parameter value.

3.Operation instructions for the touch screen

3.1. Main interface

1. Current weight display.
2. Cacket: Click this hidden button to perform manual clip (the hardware output of the weighing controller can output DC24V signal). This button function is consistent with the DC24V signal function of the hardware inlet for the pouch signal function of the weighing controller.
3. Material level: Manual material level hidden button. When the "Material Level Check" function is enabled in the "Advanced Settings", after the system is started, clicking this button means

that the material level signal input is valid. This button function is consistent with the DC24V signal function of the "feed bit" function of the weighing controller.

4. Alarm: Click this hidden button to manually reset the alarm, and can continue the next action process. This button function is consistent with the DC24V signal function for the "accept super poor" function of the weighing controller.

5. Peel: Click this button to manually peel. The automatic Peel Range can be set in the Common Settings, within which the absolute value of the current weight is peeled.

6. Formula number: click the number below, the user can enter the formula number (0 —— 9), click "ENT" to confirm, you can switch different formulas.

7. Upper Package weight: The lower value shows the quantitative value of the previous package in real time. Click this word to jump to the "package reanalysis interface".

8. Target value: Click the value below to enter the target drop value according to the requirements.

9. Advance: Click the value below, users can input advance (i. e., air flight) according to their needs.

10. Continuous measurement: display the quantitative mode. You can switch to Loop Batch, Single Lot, or Batch ton Package in Batch Mode in Advanced Settings. After clicking the number below, the number keyboard will pop up. The user can enter the "target package number" according to the requirements, and click "ENT" to confirm.

(1) "Continuous metering": in this mode, the system is continuously metering, and setting "the target package number"

below does not work.
(2) "Circular batch": the "Number of target packets" can be set in this mode, and the system can be automatically stopped after the measurement number reaches the "number of target packets".
(3) "Single batch": the "Target package number" can be set in this mode, and the system will be automatically stopped after the measurement number reaches the "target package number".
(4) "Batch ton package": the "number of target packets" can be set in this mode, and the system will be automatically stopped after the measurement number reaches the "number of target packets".
11. Number of packs remaining: The number of packets left can be displayed in batch mode.
12. Hourly yield: a real-time display of the output per hour.
13. Number of packages in hours: display the packing speed per hour in real time.
14. Live weight: The current weight is displayed in real time.
15. Number of bags on duty: display the cumulative number of bags of the class in real time.
16. Clear the shift production: click this button to clear the "number of bags on duty".
17. Last pack: Click this button system to immediately end the unloading process and jump to the "waiting bag" process.
18. Start: Click this button to start the system. This button function is consistent with the DC24V signal function of the "start / stop" function of the weighing controller.
19. Emergency stop: Click this button to stop the system. This button function is consistent with the DC24V signal function of

the "emergency stop" function of the weighing controller.

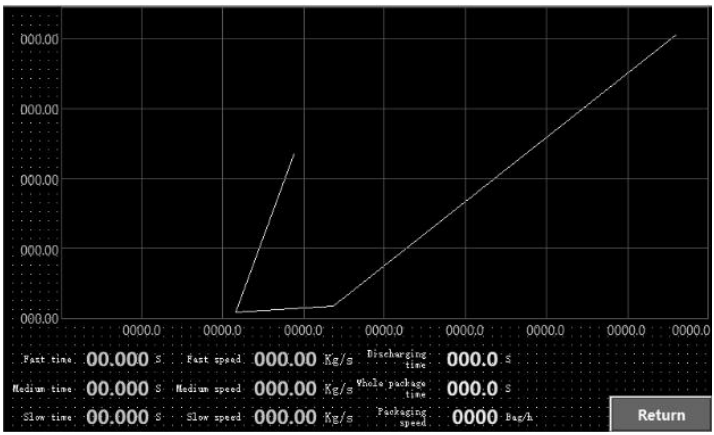
20. Common Settings: Click this button to open the "Common Settings interface of the main interface".

21. System Settings: Click this button to pop up the numeric keyboard, enter the password and click "ENT" to enter the system Settings.(User can change the password)

（1） The default level 1 password is 1, opening the Common Settings, Time Settings, Advanced Settings, and Input and Export interfaces.

（2）The default secondary password is "3", opening the Common Settings, Advanced Settings, Input and Export, Weight calibration, Motor Settings, Communication Settings, and Working Mode interfaces.

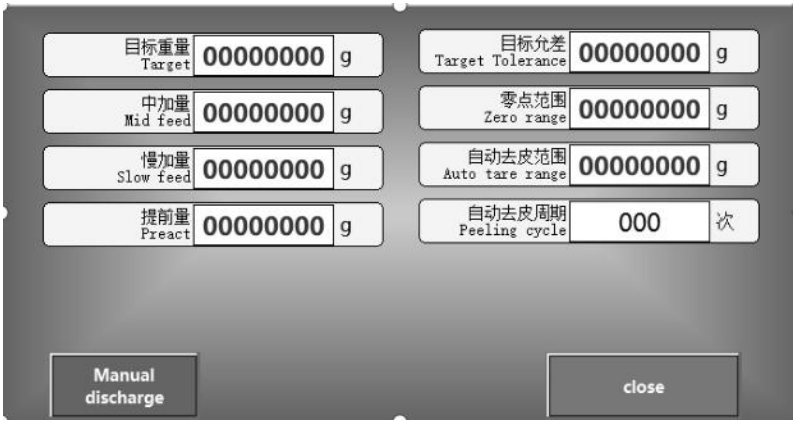
3.2. Package reweight analysis interface



1. Curve abscissa: timeline of the feeding process.
2. Curve ordinate: the weight axis of the feeding process.

3. Fast adding time: real-time display of the last package of fast feeding time.
4. Chinese and Canadian time: real-time display of the last package of medium speed feeding time.
5. Slow addition time: real-time display of the last package of slow addition time.
6. Fast acceleration: real-time display of the speed of the last package.
7. Medium acceleration: real-time display of the medium speed speed of the previous pack.
8. Slow acceleration: a real-time display of the speed of the last pack of slow feeding.
9. Charging time: real-time display of the last package of feeding time.
10. Whole package time: real-time display of the last whole package of the time.
11. Packaging speed: real-time display of packaging bags per hour.
12. Data record: Click this button to open the "Data Record interface".
13. Return: Click this button to return to the main interface.

3.3. Common setting interface of the main interface



1. Target weight: Click the value to enter the target drop value according to the demand.

2. Add volume: click the value to set the add volume. During the quantification process, if the weight target value of the material is called-medium-volume-slow-volume, close the fast add and start medium adding.

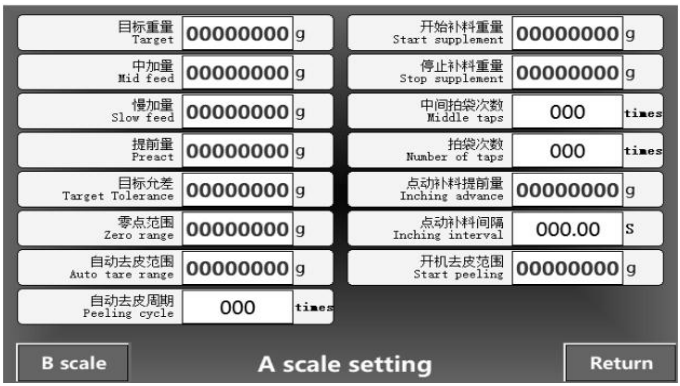
3. Slow addition: click the value to set the slow addition. During the quantification process, if the weight target value of the material-adding slowly is called, close the middle adding and start adding slowly.

4. Advance amount: Click the value to set the advance amount (air volume). During quantification, if the weight target value-lead, close the slow addition and end the charge.

5. Weight support time: Click the value to set this time. After the end of the load, enter the steady state, record the fixed value weight (if this value is set to 0, the recorded pack weight = actual load weight + advance).

6. Zero point range: Click to set the zero point range value. The unloading door is allowed to close when the weight is less than or equal to this value.
7. Fast acceleration ratio: click the value to set the percentage of valve opening during fast feeding.
8. Medium acceleration ratio: click the value to set the percentage of valve opening during medium speed feeding.
9. Slow acceleration ratio: Click the value to set the percentage of valve opening at slow feeding.
10. Fixed value weight compensation: when the weight guarantee time is set to 0, the fixed value weight compensation can be set to correct the recorded load weight value.
11. Close: Click this button to close the "Common Settings interface of the main interface".

3.4. Common Settings interface

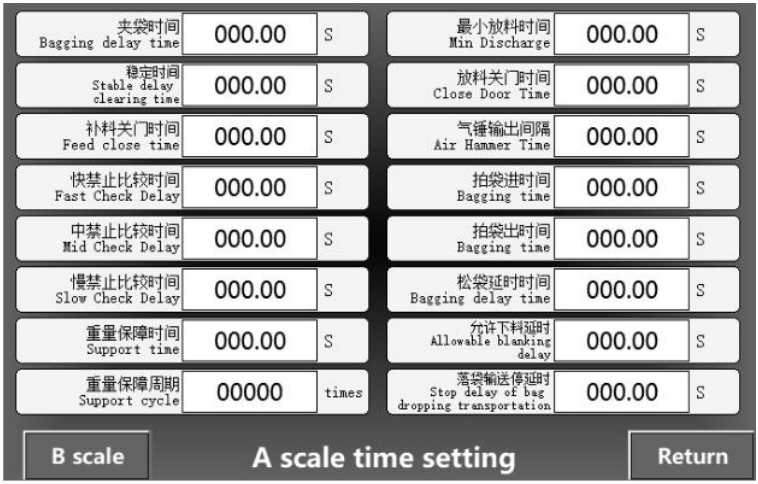


1. Target weight: Click the value to enter the target drop value according to the demand.

2. Add volume: click the value to set the add volume. During the quantification process, if the weight target value of the material is called-medium-volume-slow-volume, close the fast add and start medium adding.
3. Slow addition: click the value to set the slow addition. During the quantification process, if the weight target value of the material-adding slowly is called, close the middle adding and start adding slowly.
4. Advance amount: Click the value to set the advance amount (air volume). During quantification, if the weight target value-lead, close the slow addition and end the charge.
5. Target tolerance: Click on the numerical value to set the quantitative error range value. When the "super differential pause" function is enabled in the advanced setting, the quantitative weight will output the alarm signal outside the target tolerance range, and the hardware output port driving the "alarm" function of the weighing controller will output the DC24V signal, and the system will pause the next action. The current time in the main screen appears as Wait Tolerance, and the alarm indication in the workflow flashes red.
6. Zero point range: Click on the numerical value to set the zero point range value. The unloading door is allowed to close when the weight is less than or equal to this value.
7. Automatic peeling range: Click the numerical value to set the automatic peeling range value. The absolute value of the current weight is within this range for manual or automatic peeling.

8. Automatic peeling cycle: Click the value to set the number of automatic peeling cycles. Set to 0, no automatic peeling is performed.
9. Number of bag shots: Click the value to set the number of bag shots after the feeding. Set to 0, no pat bag.
10. Power-on peeling range: click the value to set the power peeling weight range. When the "boot set zero" function is enabled in the advanced Settings, the system is automatically peeled when the weight is in this range.
11. Fixed value weight compensation: when the weight guarantee time is set to 0, the fixed value weight compensation can be set to correct the recorded load weight value.
12. Return: Click this button to return to the main interface.

3.5. Time setting interface



1. Backing time: Click on the numerical value to set this time. Wait for this time after receiving the bagging signal. Only one signal needs to be received once during this time period.
2. Stability time: Click value to set this time. Determine the time of weight stability before the feeding begins. And delay this time for the cutting action.
3. Quick no comparison time: click the value to set this time. At the beginning of the quantification, during this time, in order to avoid overcharging without weight judgment, fast addition has been effective.
4. No-comparison time: click the value to set this time. After the end of the addition, in this time, in order to avoid overcharging the weight judgment, Canada has been effective.
5. Slow no comparison time: Click the value to set this time. After the end of China and Canada, during this time, in order to

avoid excessive rush without weight judgment, slow addition has been effective.

6. Weight support time: Click the value to set this time. After the end of the load, enter the steady state, record the fixed value weight (if this value is set to 0, the recorded pack weight = actual load weight + advance).

7. Minimum feeding time: Click the value to set this time. After the clip bag signal input is effective, the minimum delay is stopped at this time.

8. Closing time: Click the value to set this time. After the feeding signal stops the output, delay this time for the next batch. If the feeding closing time is set to 0, after the feeding signal stops output, the current state of the main interface will display "material door inspection". At this time, the hardware input port of the weighing controller "closing in place" must have signal input, and the "clip bag" signal will stop output.

9. Air hammer output interval: the action time and interval time of the air hammer after the clip bag signal input is valid. Click on the numerical value to set this time.

10. The bag entry time: the time when the "output signal" of the bag is valid after the feeding. Click on the numerical value to set this time.

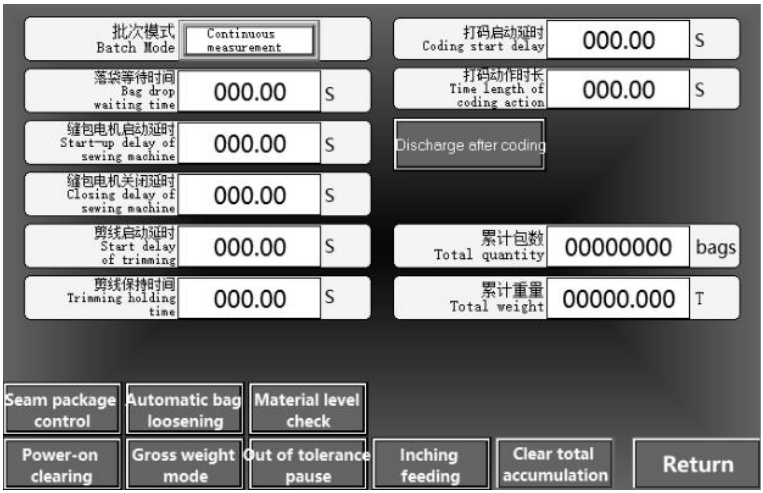
11. Sbeat bag output time: the "beat bag output signal" interval after the end of the feeding. Click on the numerical value to set this time.

12. Pine bag delay: the time when the "beat bag output signal" is maintained after the feeding ends. Click on the numerical value to set this time.

13. Drop bag delivery stop delay: when the "sewing bag control" function is opened in the advanced setting, the "drop bag delivery" signal output is effective time. Click on the numerical value to set this time.

14. Return: Click this button to return to the main interface.

3.6. Advanced Settings interface



1. Batch mode: Click the right button to switch the mode between "continuous measurement", "cycle batch", "single batch", "and" batch ton package ".

2. Drop bag waiting time: Click the value to set this time. After the bag action is completed, the hardware output of the time "bag delivery" will output DC24V signal.

3. Suack motor start delay: click the value to set this time. When the "Snap Control" function is turned on in the advanced setting, the DC24V hardware input port must always have the

DC24V input signal during this time, and the hardware output port will output the DC 24 V signal.

4. Suack motor closing delay: click the value to set this time. When there is a signal output at the hardware output port of "sewing motor", delay this time to stop the signal output.

5. Cut pping start delay: click the value to set this time. When the hardware output port of "sewing motor" stops the signal output, the hardware output port output DC24V signal.

6. Cut time: Click the value to set this time. When the hardware output port of the "wire shear cylinder" has a signal output, the delay time stops the signal output.

7. Cumulative weight: display the cumulative quantitative value in real time.

8. Cumulative package number: the accumulated quantitative package value is displayed in real-time.

9. Sack control: Click this button to turn green, which means the sewing control function is enabled. Click off again.

10. Material level check: Click this button to turn green, which represents the "material level check" function. After the system is started, the hardware input port "feeding bit" must have DC24V input signal or manually click the "material bit" button of the "main interface" to allow unloading.

11. Power on set zero: click this button to turn green, which represents the "power on set zero" function. When the system is started for the first time, the weight is within the "boot peeling range".

12. Automatic pine bag: Click this button to turn green, representing the "automatic pine bag" function. During the

unloading process, when the weight is below the "zero point range", the loose bag action is performed automatically. If this function is not turned on, the loose bag must be manually controlled after the unloading is completed.

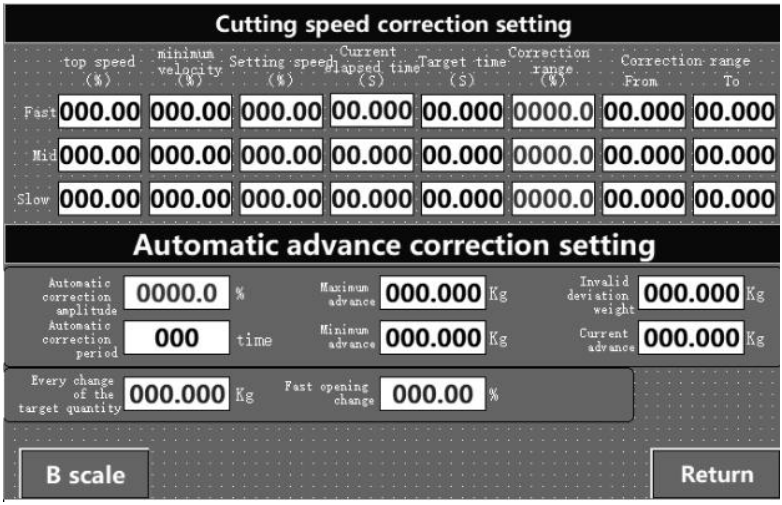
13. Excessive pause: Click this button to turn green, which means that the "extraordinary pause" function is enabled. If the quantitative weight is outside the target tolerance range, the hardware output port driving the "alarm" function of the weighing controller will output the DC24V signal, and the system will pause the next action. The current time in the main screen appears as Wait Tolerance, and the alarm indication in the workflow flashes red. At this time, if you click the "alarm" hidden button on the main interface, you can manually reset the alarm, and continue the next action process. This button function is consistent with the DC24V signal function for the "accept super poor" function of the weighing controller.

14. Total cleaning accumulation: click this button to clear the "accumulated weight" and "cumulative number of packages".

15. Correction Settings: Click this button to jump to the "Automatic Correction Settings interface".

16. Return: Click this button to return to the main interface.

3.7. Automatic correction of the setting interface



Disloading speed correction setting:

1. Maximum speed: the maximum valve opening for fast, medium and slow addition process respectively.
2. Minimum speed: the minimum valve opening degree for the fast addition, medium addition and slow addition process can be set respectively.
3. Current speed: the valve opening degree showing the fast, middle and slow adding processes respectively.
4. Last package time: real-time display of the fast, medium and slow addition of the last package.
5. Target time: you can set the fast add, medium add and slow add time that you want to achieve respectively.
6. Correction range: the correction range of the fast plus, medium plus and slow plus valve opening can be set respectively.

When the correction range is greater than 0, the automatic correction function is enabled, and when the correction range is 0, the automatic correction function is turned off.

7. Invalid deviation: can set the invalid deviation time of fast add, middle plus and slow add control respectively (| last time-target time | invalid deviation, represents the automatic correction function enabled; | last time-target time |> invalid deviation represents the closed automatic correction function).

Advance amount Setsetting:

1. Automatic correction amplitude: when the automatic correction amplitude is greater than 0, the advance automatic correction is enabled. The automatic correction amplitude value can be set, the larger the value, the larger the correction amplitude.
2. Automatic correction cycle: the number of cycles of advance automatic correction can be set.
3. Invalid deviation weight: invalid deviation weight can be set (| last advance-current advance | invalid deviation, represents the automatic correction function is enabled; | last advance-current advance |> invalid deviation represents closed automatic correction function).
4. Maximum lead: the maximum advance can be set, and the revised advance will not exceed this value.
5. Minimum advance: the minimum advance can be set, the corrected advance is not lower than this value.

6. Current lead: The corrected current lead can be displayed in real time.

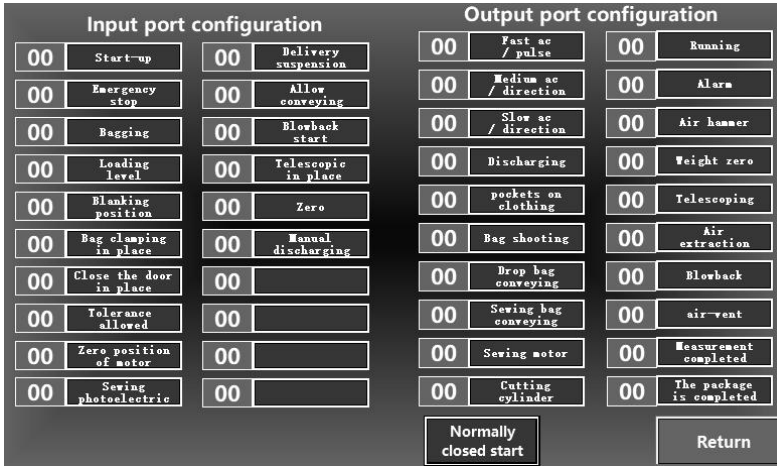
1. Fast feed speed: the valve opening for fast feed process.
2. Intermediate feed speed: the valve opening of the intermediate feed process can be set.
3. Slow feed speed: the valve opening of slow feed process can be set.
4. Maximum target quantity: the maximum measurement target value of this measuring unit can be set.
5. Each change of the target quantity: the change amplitude value of the target quantity can be set.
6. Fast opening change: the change frequency percentage of the valve opening of the fast adding process can be set.

[Calculation formula: set fast incoming feed speed- (maximum target amount-modified target amount) fast opening degree change = corrected fast incoming feed speed]

Example: The maximum target amount is set to 25 KG, the target amount is set to 1 KG, the change of fast opening is set to 5%, and the fast feed speed is currently 100%. If the target weight is modified to 20 KG, the fast feed speed is changed to 75% after starting the system. The algorithm is as follows:

100% -（25 - 20）× 5% = 75%

3.8. Input / output interface



3.8.1 Wiring and definition of the input port

The main board provides 12 photoelectric isolated input points, PNP input, internal overcurrent and overvoltage protection.

number	name	Functional overview
X1	firing	When the input signal is high (with positive 24V), the controller will start the program cycle. When the controller input signal is low, the current process stops the program.
X2	jerk	When the input signal is high level (with positive 24V), forcibly stop the program.
X3	Clip bag	When the input signal is high in the

	signal	"bagging time" (conduction with positive 24V), it is judged to be the clip bag start signal, and the hardware output port driving the "clip bag" function of the weighing controller outputs the DC24V signal. This feature is consistent with the Couch hide button on the main interface.
X4	On the material position	When the input signal is high level (with 24V), it is judged that there is material in the loading bin.
X5	Descent position	not have
X6	The bag in place	not have
X7	Close the door in place	If the feeding closing time is set to 0, after the feeding signal stops output, the current state of the main interface will display "material gate check". At this time, the high level signal (connected with the positive 24V) must be input to continue the next process, and the "clip bag" signal will stop output.
X8	Accept the excess	After opening the "super-poor pause" function. When the input signal is high level (conduction with positive 24V), it is judged to accept that the

		quantitative weight is outside the target tolerance range, reset the differential alarm, and can continue the next action process. This function is consistent with the Alarm hidden button function on the main interface.
X9	Motor zero position	When the input signal is high level (with positive 24V), it is judged that the motor reaches the zero position.
X10	Sewing package photoelectric	If the "Sack Control" function is enabled in the advanced Settings. When the input signal is high level (with positive 24V), the delay "sewing motor start delay" time output DC24V signal
X11	Delivery suspension	When the input signal is high (on with positive 24V), the weighing controller hardware output port "Sack delivery" stops the signal output.
X12	Allow delivery	When the input signal is high (with positive 24V), the weighing controller hardware output "drop bag delivery" and "seam bag delivery" pause the signal output.
X13	Anti-blow start	not have
X14	Expansion in place	not have

X15	remove the peel	When the system stops, when the weight value is lower than the "automatic peeling range", enter the high level, and raise the edge signal (briefly on with positive 24V), and the current weight will be zero.
X16	Manual discharge	In the system stop state, when the high level rising signal is input (briefly connected with the positive 24V), the weighing controller hardware output output DC24V signal until the weight value is below the "zero point range".

Normally closed start: click this button to switch to "click start", the input port "start and stop" a input signal is effective.

3.8.2 Wiring and definition of the output port

The main board provides 20 photoelectric isolated output points (including 1100 KHz high speed pulse output), PNP half bridge output, each road can directly drive the intermediate relay, transistors, etc., with internal overcurrent and overvoltage protection.

number	name	Functional overview
Y1	impulse	High-speed pulse is sent when the motor control mode is pulse positioning.
Y2	direction	When the motor control mode is pulse

		positioning, control the motor direction.
Y3	enable	When the motor control mode is pulse positioning, the control motor is enabled.
Y4	blowing	The DC24V signal is output at this point during the feeding operation.
Y5	Clip bag	The DC24V signal is output during the pocket action.
Y6	Pack the bag	The DC24V signal is output during the bag action.
Y7	Drop bag delivery	The DC24V signal is output at this point during the drop bag delivery operation.
Y8	Seat bag delivery	DC24V signal is output at this point during the sewing delivery action.
Y9	Seat bag motor	The DC24V signal is output at this point when the sewing motor moves.
Y10	Wire cylinder	The DC24V signal is output at this point when the wire shear cylinder moves.
Y11	move	The DC24V signal is output at this point when the system runs.
Y12	report to the police	The DC24V signal is output at this point when the quantitative weight is outside the target tolerance range.
Y13	air-hammer	The DC24V signal is output during the air hammer moves.

Y14	Weight zero	The DC24V signal is output at this point when the current weight is in the zero range.
Y15	not have	not have
Y16	not have	not have
Y17	not have	not have
Y18	air-vent	The DC24V signal is output at this point during the fast-adding process.
Y19	Measurement completed	Export the DC24V signal at this point after the measurement is completed.
Y20	When the package is completed	When the "Material Level check" function is turned on, the point output DC24V signal after the end of the single process. Stop the signal output when the next batch of loading level signal is valid.

3.8.3 The input and output port function switch

Users can define the input and output port function by themselves.

For example, change the number 5 before the output port "clip bag" to the number 9. The function of hardware output 9 is changed to "clip bag", and the function of hardware output 5 is changed to "sewing package motor".

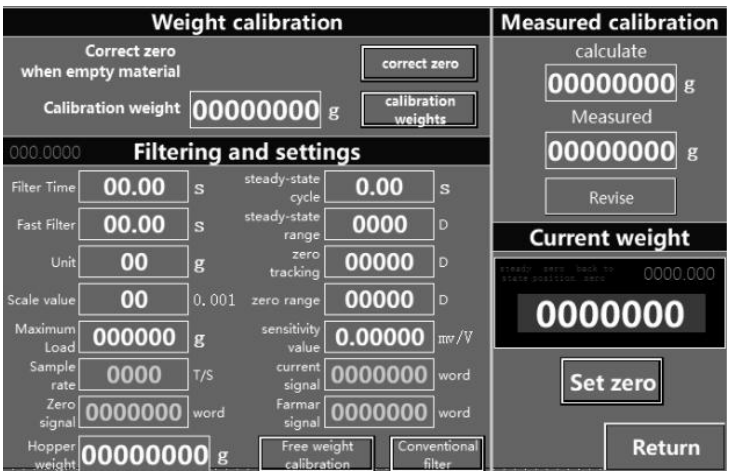
Note: The output port "Y1" is a high-speed pulse output port, which cannot be changed at will.

3.8.4 Hardware test of the input and output port

Input port test: open the input and output interface in the touch screen. When the external input signal is valid, the corresponding input port lights up as green. If the corresponding input port does not respond, then indicate the abnormal input, check the external input equipment and wiring, etc.

Output port test: open the "input / output interface" in the touch screen. Click the output port button, the button becomes green, the corresponding hardware output port will force the output of DC24V signal. This function can be used to observe whether the external load connection is valid and whether the various functions are normal.(Note: "Alarm" and "Weight zero" button cannot force output, the output signal must be given by the internal program)

3.9. Weight calibration interface



3.9.1 Definition of weight calibration parameters

1. Check zero: Click this button to adjust the weight zero.
2. Weight: Click the value to enter the calibrated weight.
3. School weight: Click this button to check the weight.
4. Filter time: Click on the numerical value to set the weight filtering time.
5. Fast filtering: Click on the numerical value to set the weight fast filtering time.(Weight comparison during the fast adding process)
6. Weight unit: The weight unit is KG (internal fixation)
7. Scale value: Click this value to set the exact number of weight decimal places.

(Set to 0 —— to be accurate to 0.001
1 —— is accurate to 0.002
2 —— was accurate to 0.005
3 —— is accurate to 0.01
4 —— is accurate to 0.02
5 —— was accurate to 0.05
6 —— is accurate to 0.1
7 —— is accurate to 0.2
8 —— accurate to 0.5)

8. Sampling speed: display the speed of the motherboard in real time.
9. Sensitivity value: Click the numerical value to set the sensitivity value of the sensor.
10. Zero signal: the zero signal value after zero is displayed.
11. Weight signal: display the weight signal value after the weight.

12. Current signal: display the current weight signal value in real time.
13. Hopper weight: Click the numerical value to set the weight value of no weight calibration.
14. Steady state period: Click the value to set this value. The current weight fluctuates in the steady-state range at this time and is considered in the steady-state.
15. Steady state range: Click the value to set the weight steady state judgment range.(For example, if the weight unit is KG, the separation value is 3, and the steady state range is set to 10 minutes, then the weight steady state range is-0.1KG——+0.1KG)
16. Zero point tracking: Click the value to set the range of weight chasing zero.(For example, if the weight unit is KG, the separation value is 3, and the zero tracking is set to 10 minutes, the current weight between-0.1KG——+0.1KG will be zero until the weight is 0)
17. Zero range: Click the value to set the range value of the weight at zero.(For example, if the weight unit is KG, the score is 3, and the zero range is set to 1 degree, then the current weight between-0.01KG——+0.01KG is considered as the zero weight)
18. Free weight calibration: Click this button to make free weight calibration.
19. Regular filtering: Click this button to turn green and switch to anti-shaking filter.
20. Current weight: the weight measured by the weighing sensor.
21. Set Zero: Click this button to make the current weight zero.
22. Return: Click this button to return to the main interface.

3.9.2 The Scale calibration Method

Note: If the first use of the equipment or any part of the equipment has changed, and the calibration parameters of the current equipment cannot meet the user requirements, the equipment shall be adjusted. The calibration scale parameters directly affect the measurement results.

1. Standard weight scale calibration method:

（1） Empty the material in the metering hopper, close the discharge door, and remove the excess load.

（2） Enter the "weight calibration interface". After the weight is stable, click the calibration zero, and the "positive calibration zero" is displayed. After the end, the current weight is displayed as 0, and the calibration zero ends.

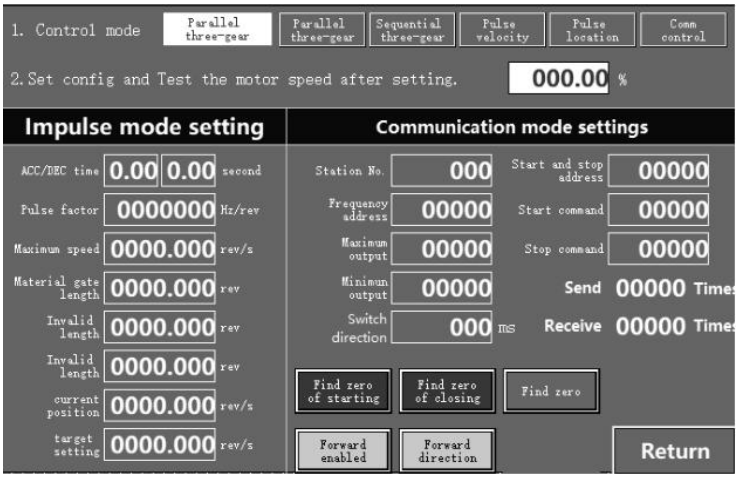
（3）Add the weights to the weighing mechanism. After the weight is stable, enter the corresponding weight in the "Weight" input box. Then click the calibration weight to display "in calibration". After completion, the current weight is consistent with the weight weight. After the weight is removed, the weight is returned to zero before the school scale is completed.

2. No weight calibration method (this operation is careful):

If the sensor range and sensitivity value mv / V (marked with manufacturer certificate) are known, weight-free calibration can be performed. Direct input sensor range and sensitivity value.

Note: If the current weight is accidentally zero, you can enter the known weight in the hopper Weight input box, and then click the free weight calibration, when the current weight is the weight of the single point calibration.

3.10. Motor setting interface



The ordinary mode is divided into

Parallel three-speed fast and slow simultaneous packet output

Order three speed fast in slow separate output

(When selecting the pulse speed and pulse positioning mode)

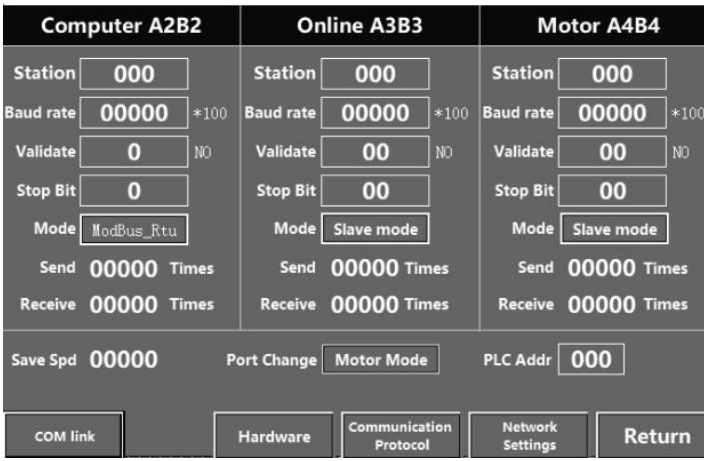
1. Test motor speed: When the system is stopped running, click the input box to directly input the valve opening (0 —— 100%) for test and adjustment.

2. Acceleration time: Click the value to set the pulse acceleration time.

3. Reducation time: Click the value to set the pulse deceleration time.

4. Pulse coefficient: Click the number to set the number of pulses required for the motor to travel 1mm.
5. Maximum speed: Click the value to set the maximum 1 second travel distance (mm).
6. Door length: Click the numerical value to set the length of the feeding valve.
7. Invalid length: Click the numerical value to set the invalid length of the feeding valve.
8. Zero position: Find the current zero position after the "zero".
9. Current position: Live displays the position of the valve during the action.
10. Set the target: display the target position given during the system operation. You can also set this value directly in the input box for testing and adjusting.
11. Boot change: click this button to turn green, representing the opening of the zero function.
12. Find zero: Click this button to do manual change.
13. Zero Change Complete: This status button turns green when the zero search point is complete.
14. Return: Click this button to return to the main interface.

3.11. Serial port communication setting interface



Motherboard supports 3-channel RS-485 serial communication interface, serial port support: M odbus Rtu protocol format. Default port rate 115200,8 bits, stop bits 1, and no parity.

Because the communication input signal is an analog signal, which is more sensitive to electronic noise, the signal transmission should be shielded cable, and it should be laid separately from other cables, and should not be tied together. Signal cables shall be remote from the AC power supply.

1. Station number: Click the numerical value to set the station number of the corresponding serial port.
2. Paud rate: Click on the numerical value to set the baud rate of the corresponding serial port.(Back unit * 100, if set to 96, the port rate is 9600)
3. Check bit: Click the input box to set the check box.(0 —— NO is not checked;

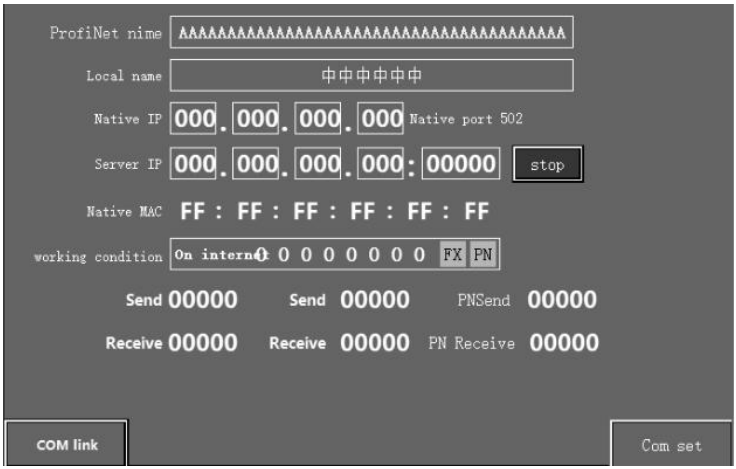
1 —— ODD odd check; 2 —— EVEN even check)

4. Stop bit: Click the value to set the stop bit to 1 or 2.

5. Number of sending times: display the number of sending times of each serial port communication in real time.

6. Receiving times: display the receiving times of each serial port communication in real time.

3.12. Network port communication setting interface



The Motherboard supports the 1-road network port.(8 Thread, which supports simultaneous access to 8 network devices)

Support the Modbus _ TCP and Modbus _ UDP protocols. The default IP address is 192.168.10.30, and the port number is 502.

It also supports the Profinet protocol and provides custom PN configuration tools that can be directly communicated with Siemens PLC.(To contact us for the GSD editing software)

1. Profinet Name: Click to set the Profinet name.

2. Local name: Click to set the local name.

3. Native IP: Click to set the local IP address.
4. Server IP: Click to set the IP address of the server.
5. Local MAC: Show the MAC address of the local machine.
6. Working status: Two can of the cable plugged plugged and InInIndisplayed.(PN status indication turns green when PN communication is successful)
7. Number of sends: the number of data sent in real time.
8. Number of received: number of data received in real time.
9. PN sending: Real-time display of the times of data transmission in PN communication.
10. PN receiving: Real-time display of the data receiving times under PN communication.

4. Description of the action flow

By default, the "sewing bag control", "automatic loose bag", "material level check", "boot set zero", "super poor pause" and "boot change" functions are enabled.(Unneeded features can be cancelled in advanced settings and motor settings)

1. Power on the device, start up and change.
2. start-up system.
3. Output port "sewing packet delivery" and "running" output signals.
4. If the current weight is within the Power On Peel range, peel automatically.
5. Wait for the level signal. This signal output port "When the package is complete" stops the signal output and goes to the next step.
6. Stable time to.

7. If the current weight is in the Automatic Peel Range, perform automatic peeling according to the Automatic Peel Cycle.
8. Enter fast plus. Output port "vent port" output signal.
9. Fast prohibit comparison time.
10. If the weight target value of the material is-in-add-slow add, close the fast add and start adding. At the same time, the output port "exhaust port" stop signal output.
11. No comparison time to the middle.
12. If the weight target value of the material is called-adding slowly, close the middle adding and start adding slowly.
13. Slow prohibit comparison time to.
14. If the weight target value of the material is advanced, close the slow charge and end the charge.
15. Output port "metering complete" output signal.
16. Delayed weight guarantee time record the package weight.(If the weight guarantee time is set to 0, the recorded pack weight = actual load weight + advance)
17. If the load weight is outside the target tolerance range, wait to accept the differential signal and continuously output the alarm signal. If the pack weight is within the target tolerance, proceed to step 19.
18. If there is an exceptional acceptance signal, go to the next step.
19. Waiting for the bag.
20. If there is a clip bag signal, delay the "bagging time" output port "charge" and "pocket" output signal. The output port "air hammer" shall output the signal according to the output interval time.

21. Delay minimum feeding time goes to the next step.
22. If the current weight is within the zero range, the output port "feed" and "air hammer" stop signal output.
23. Delay "feeding closing time" output port "metering complete" stop signal output, output port "when the package is complete" output signal.(If the feeding closing time is set to 0, and after the "feeding" of the output port stops output, the current state of the main interface will display "material door check", and the hardware input port "close the door" must have signal input to enter the next step)

(At this point, repeat step 5 to start the next batch, without affecting the subsequent action)

24. The output port "beat bag" output the signal according to the beat bag number and interval.
25. Delayed loose bag time output port "clip bag" and "beat bag" stop signal output.
26. Delay "drop bag waiting time" output signal.
27. Delay "bag delivery stop delay" output "bag delivery" stop signal output.
28. If there is a "sewing package photoelectric" signal input during the "sewing package motor start delay" time, the output port "sewing package motor" output signal.
29. Delay "sewing motor closing delay" time output port "sewing motor" stop signal output.
30. After the output of the stop signal of the output "sewing motor", the delay "shear start delay" of the output "shear cylinder" output signal.

31. Delay "shear hold time" output port "shear cylinder" stop signal output.

5. postal address

5.1. Internal mailing address table

order number	address	definition	data type	remarks
F00.00	4x0706	Filter time	Single-word / unsigned number	
F00.01	4x0724	unit of weight	Single-word / unsigned number	
F00.02	4x0708	division value	Single-word / unsigned number	
F00.03	4x0710	metre fullscale	Double word / floating point number	

F00.04	4x0712	Sensitivity value	Double word / floating point number	
F00.05	4x0720.00	Conventional filtering	Bit operation / binary number	Position 0: conventional filtering Position 1: antishake filtering
F00.06	4x0715	Range of steady state	Single-word / unsigned number	
F00.07	4x0716	Zero point tracking	Single-word / unsigned number	
F00.08	4x0717	Zero point range	Single-word / unsigned number	
F00.21	4x0707	Fast filtering	Single-word / unsigned number	
F01.00	4x0601	A1B1	Single-wor	

		communicatio n port station number	d / unsigned number	
F01.02	4x0602	A2B2 communicatio n port station number	Single-wor d / unsigned number	
F01.03	4x0606	A2B2 communicatio n port port rate	Single-wor d / unsigned number	
F01.04	4x0610	A2B2 communicatio n port check bit	Single-wor d / unsigned number	
F01.05	4x0614	The A2B2 stop position	Single-wor d / unsigned number	
order numbe r	**address**	**definition**	**data type**	**remarks**
F01.06	4x0605	A3B3 communicatio n port station number	Single-wor d / unsigned number	
F01.07	4x0609	A3B3 communicatio	Single-wor d /	

		n port port rate	unsigned number	
F01.08	4x0613	A3B3 communicatio n port check bit	Single-wor d / unsigned number	
F01.09	4x0617	The A3B3 stop position	Single-wor d / unsigned number	
F01.10	4x0624.0 0	A3B3 working mode	Bit operation / binary number	Position 0: From the mode Position 1: Main mode
F01.11	4x0604	A4B4 communicatio n port station number	Single-wor d / unsigned number	
F01.12	4x0608	A4B4 communicatio n port port rate	Single-wor d / unsigned number	
F01.13	4x0612	A4B4 communicatio n port check bit	Single-wor d / unsigned number	
F01.14	4x0616	The A4B4 stop	Single-wor	

		position	d / unsigned number	
F01.15	4x0625.00	A4B4 working mode	Bit operation / binary number	Position 0: From the mode Position 1: Main mode
F01.16	4x0626.00	Port conversion	Bit operation / binary number	Position 0: frequency conversion control Position 1: linkage control
order number	**address**	**definition**	**data type**	**remarks**
F02.00	D200	Target weight	Double word / floating point number	
F02.01	D202	Plus quantity	Double word / floating point number	

F02.02	D204	Slow increase	Double word / floating point number	
F02.03	D206	lead	Double word / floating point number	
F02.04	D208	Zero point range	Double word / floating point number	
F02.05	D210	Target allowance	Double word / floating point number	
F02.06	D212	Bag time	Single-word / unsigned number	
F02.07	D213	stabilization time	Single-word / unsigned number	

F02.08	D214	Weight guarantee time	Single-word / unsigned number	
F02.09	D215	Automatic peeling cycle	Single-word / unsigned number	
F02.10	D216	Automatic peeling range	Single-word / unsigned number	
F02.11	D218	Rapid acceleration ratio	Single-word / unsigned number	
F02.12	D219	The proportion of China-plus speed	Single-word / unsigned number	
F02.13	D220	The proportion of slow acceleration	Single-word / unsigned number	
F02.14	D221	Fast prohibit comparison time	Single-word / unsigned number	

F02.15	D222	Comparison time is prohibited in China	Single-word / unsigned number	
F02.16	D223	Slow prohibit comparison time	Single-word / unsigned number	
order number	**address**	**definition**	**data type**	**remarks**
F02.17	D224	.....		
F02.18	D225	The number of bags	Single-word / unsigned number	
F02.19	D226	Shot bag into time	Single-word / unsigned number	
F02.20	D227	Make a bag of time	Single-word / unsigned number	
F02.21	D228	Pine bag delay	Single-word / unsigned number	

F02.22	D229	.....		
F02.23	D230	.....		
F02.24	D231	.....		
F02.25	D232	.....		
F02.26	D233	Minimum discharge time	Single-word / unsigned number	
F02.27	D234	Filling closing time	Single-word / unsigned number	
F02.28	D235	Air hammer output interval	Single-word / unsigned number	
F02.29	D236	Feed control mode	Single-word / unsigned number	4: Pulse positioning
F02.30	D237	.....		
F02.31	D238	.....		
F02.32	D240	.....		
F02.33	D242	.....		
F02.34	D244	.....		
F02.35	D246	.....		
F02.36	D248	.....		
F02.37	D250	Drop-off bag	Single-wor	

		delivery and stop delay	d / unsigned number	
order number	**address**	**definition**	**data type**	**remarks**
F02.38	D258	Batch mode	Single-word / unsigned number	
F02.39	D259	.....		
F02.40	D260	Turn on the skin range	Double word / floating point number	
F02.41	D262	.....		
F02.42	D264	.....		
F02.43	D266	.....		
F02.44	D268	Fixed value weight compensation	Double word / floating point number	

5.2. Process register address

order number	address	definition	remarks

1	M1200	Internal start button	Start / stop button on the bread
2	M1201	Internal running state	The internal logo is used
3	M1202	jerk	Set ON is valid, automatic reset
4	M1203	Manual material position	Set ON is valid, automatic reset
5	M1204	remove the peel	Set ON is valid, automatic reset
6	M1205	Clip bag request	Set ON is valid, automatic reset
7	M1206	Clip bag output	The internal logo is used
8	M1211	Whether out of line	The internal logo is used
9	M1212	Clear the alarm	Set ON is valid, automatic reset
10	M1216	Pack output	The internal logo is used
11	M1217	The bag is finished	The internal logo is used
12	M1218	When the package is completed	The internal logo is used
13	M1240	Weight zero	The internal logo is used
14	M1241	Weight	The internal logo is

		homeostasis	used
15	M1242	Fast plus	The internal logo is used
16	M1243	China and Canada	The internal logo is used
17	M1244	Slow and	The internal logo is used
18	M1245	Clear class production	Set ON is valid, automatic reset
19	M1246	Qing total production	Set ON is valid, automatic reset
20	M1247	The last package	Set ON is valid, automatic reset

6. Common fault analysis and troubleshooting

order number	fault phenomenon	analysis of causes	method of disposition
1	The current weight is unstable.	1. Strong wind or vibration in the surrounding environment; 2. Induction is on the device.	1. Check and exclude; 2. Connect the ground wire and the sensor shielding wire.
2	The output port "When the package is	"Material level inspection" is not opened, as a sign	Turn on the Material it Check function

	complete" has no signal output.	for the completion of the package.	in advanced Settings.
3	The quantitative weight is getting smaller and smaller.	The discharge is not clean, and there is surplus material in the scale bucket.	Set the "zero range" and the "minimum feeding time" reasonably.

7. Feeding

7.1 Belt feeding

The models that adopt the feeding structure: DCS50PD/DCS50PD-2.

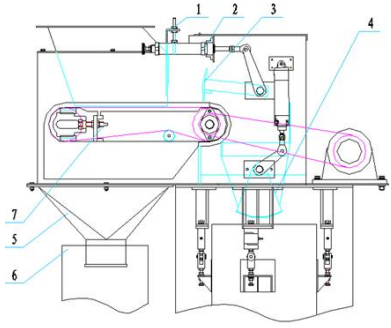
Belt feeding is suitable for rough powde materials with poor fluidity, which is a common feeding form in fodder industry.

Frequency conversion motor is used to drive the belt to control the feeding speed of two stages, the thickness of rough feeding and medium feeding is controlled by the plug plate, the thickness of fine feeding is controlled by the pneumatic plug plate, the length of suspended material in the air is controlled by the cutting gate to improve the measuring precision of the packaging scale.

Main components:

①Cutting plug plate;

② Fine feeding gate cylinder;



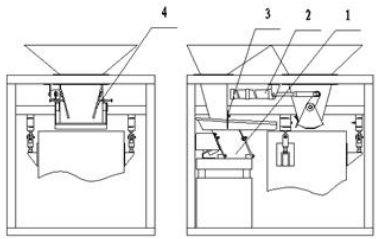
③ Fine feeding gate;
④Cutting valve;
⑤ Accumulationbucket

7.2 Valve feeding+vibrating feeding

The models that adopt the feeding structure: DCS5Q-2, DCS15Q-2, DCS25Q/DCS25Q-2 and DCS50Q/DCS50Q-2.

This feeding is suitable for granular materials with good fluidity, which is composed of pneumatic valve and electromagnetic vibration. The pneumatic valve controls the rough feed, and the vibration feed controls the fine feed. The feeding speed of rough feeding can be adjusted by adjusting the bolt at the end of the stroke adjustable cylinder. The fine feeding speed adjusts the vibration amplitude through digital pressure regulating module, and the thickness of the material layer on the vibrating feeding trough can be adjusted by plug plate.

The adjusting method of digital pressure regulating module and stroke adjustable cylinder is shown in 8.6.1(Adjusting



method of digital control module of feeding device). Main components: ① Vibrating feeding mechanism; ② Feeding air cylinder; ③ Fine feeding plug plate

7.3 Double-valve feeding

The models that adopt the feeding structure: DCS50S/DCS50S-2

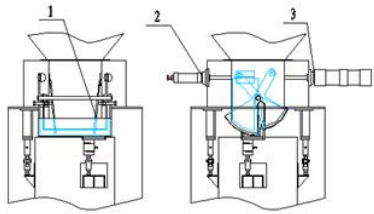
This feeding device controls the rough feeding and medium feeding by a feeding door driven by a double-stroke cylinder. The feeding valve driven by the stroke adjustable cylinder controls the fine feeding, and the feeding speed of the rough feeding and the medium feeding is controlled by a valve adjusting plate.

Main components:

① Roughing feeding valve adjusting plate,

② Stroke adjustable cylinder;

③ Double-stroke air cylinder.



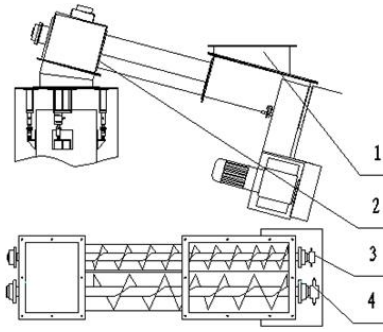
7.4 Double-auger feeding device

The models that adopt the feeding structure: DCS50HFA/DCS50HFA-2, DCS50HFP

The double-auger feeding drives coarse and fine augers to control feeding through two variable frequency drives controlling the variable frequency motor respectively, the coarse auger controls the big feeding, and the fine auger controls the medium feeding

and fine feeding. The rotation speed of the auger can be adjusted by the frequency converter.

The setting method of frequency converter is shown in 8.5 (feed speed adjustment method).



Main components:

① Feeding port,

② ② Discharging port,

③ ③ Fine auger,

④ ④ Rough auger