



AMC401-D

**Double channel packing
controller instruction
manual**

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Company web site: <http://www.szamp.com.cn/>

This product carries out the standard:

GB/T 7724-2008 National standard of <electronic weighing instrument>

JJF1624-2017 Type evaluation outline of <digital weighing indicator (weighing indicator) >

JJG649-2016 Verification regulation of digital weighing indicator (weighing indicator)



1. essential information

1.1. Features and specifications

AMC401-D is a dual-channel quantitative packaging control module with AI intelligent packaging algorithm, which supports bucket packaging, bucket packaging, valve scale, and bulk accumulation. Users only need to set a target value to run normally. AMC401-D has the AI intelligent packaging function, which will automatically adjust the advance parameters, simplify the debugging process, and increase the ease of use of the product to the greatest extent. Users can also use the Chinese touch screen interface prepared by our company to further increase the ease of usability of the product.

The AMC401-D controller has the following basic characteristics:

- Self-test AI intelligent packaging algorithm, automatic adjustment
- Weigh the channel: double channel
- Operating voltage: DC24V
- Sensor: DC5V / 4-6-wire compatible
- Switch quantity: 10 input / 16 output

●RS232 Communication: 1 road

●RS485 Communication: 1 road

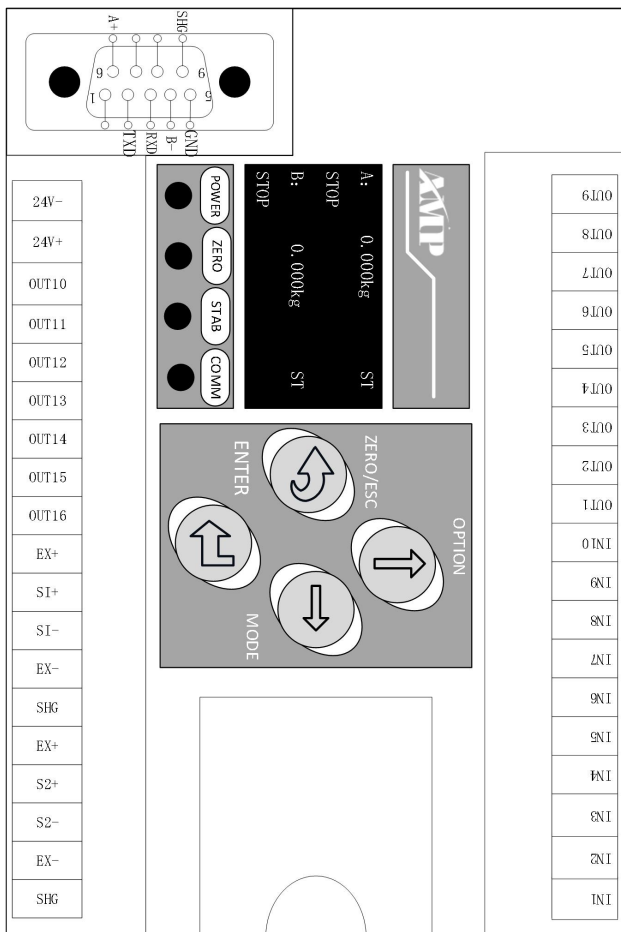
● Installation method: Guide rail type installation
(screw fixation)

● Volume: 120 * 88 * 61 (L、W&H, mm)

Detailed technique, and the specifications are as follows:

Sensor incentive	DC5V $\pm$ 10% / 120 mA drive current / 8350 Ω size sensors
Adaptive sensor sensitivity	2 mV / V or 3 mV / V
Enter the signal range	0~15mV
input sensitivity	0.5uV/d
Nonlinear	0.02%FS (at 3 mV / V)
zero drift	<0.5 μ V/°C
gain drift	<10PPM/°C
AD slew rate	And 960 beats / second
Highest display resolution	1/100000
Product accuracy level	III
working voltage	DC24V (18V ~30V compatible)
Product power consumption	<5W
working temperature	-10°C~45°C
storage temperature	-20°C~60°C
humidity	Within 90% RH (no condensation)

1.2.front panel



The front panel consists of LCD, 4 indicators and 4 buttons.

The instructions are as follows:

pilot lamp

DATA	When the serial port receives the instruction and responds, the indicator light is on once
STAB	The controller has a stable weight and a bright duration
ZERO	The controller weight is long and bright at zero point
POWER	Electricity flashing
key	
 Zero / ESC	1. The menu interface key to exit to the previous menu once. 2. In standby state, press the key to perform zero clearing operation once. 3. Standby state long press the calibration zero operation. 4. Value input interface, long press to clear the input data. 5. The alarm can be cleared when it exists.
 OPTION	1. Menu and selection interface, move the cursor up. 2. Value input interface to make the flashing number plus 1. 3. When the "8.1.2 or 8.2.2" protocol selects ⑥ [Manual printing], the main interface button performs the printing operation at one time.
 MODE	1. Menu and selection interface, move the cursor down. 2. Value input interface, move the flashing cursor to the right.

 EXTER	1. Menu and selection interface to confirm the current options. 2. Numerical input and options interface to confirm the preservation of the current data.
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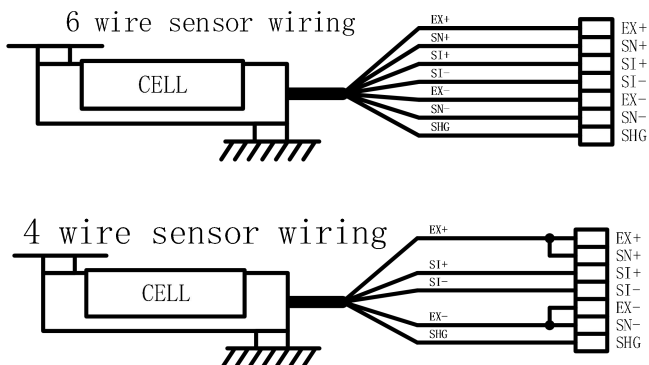
1.3. Terminal port

The wiring ports are described as follows:

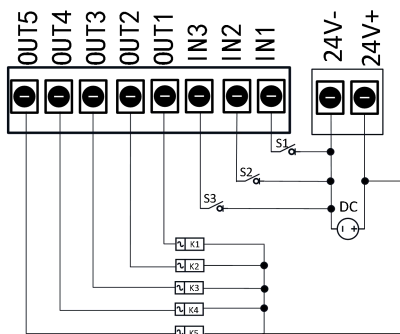
class	joggle	explain	
POWER	24V	DC24V Positive power supply	
	24G	The DC24V power supply is negative	
sensor interfa ce	EX+	Sensor, and the excitation is positive	
	S1+	Sensor signal positivel	
	S1-	Sensor signal negativel	
	SN -	Sensor induction negative	
	SHG	Sensor, the shielding wire	
	EX+	Sensor, and the excitation is positive	
	S2+	Sensor signal positive2	
	S2-	Sensor signal negative2	
	SN -	Sensor induction negative	
	SHG	Sensor, the shielding wire	
IO output	OUT1	output 1	Q1. Running
	OUT2	output 2	Q3. A fast
	OUT3	output 3	Q4. A Med
	OUT4	output 4	Q5. A Slow
	OUT5	output 5	Q6. A Result Hold
	OUT6	output 6	Q7. A Discharge
	OUT7	output 7	Q14. B Fast

	OUT8	output 8	Q15. B Med
	OUT9	output 9	Q16. B Slow
	OUT10	output 10	Q17. B Result Hold
	OUT11	output 11	Q18. B Discharge
	OUT12	output 12	Q8. A Clamp Bag
	OUT13	output 13	Q25. Over/Under
	OUT14	output 14	Q9. A Flag
	OUT15	output 15	Q26. Warning
	OUT16	output 16	Q2. Stop
I/O Input	IN1	input 1	I1. Start
	IN2	input 2	I2. Stop
	IN3	input 3	I20. A Zero
	IN4	input 4	I21. B Zero
	IN5	input 5	I4. A Manual Disc
	IN6	input 6	I6. B Manual Disc
	IN7	input 7	I8. A Clamp/unclamp
	IN8	input 8	I9. B Clamp/unclamp
	IN9	input 9	I10. Clr Alarm
	IN10	input 10	I0. None
serial port (RS485)	A+	RS485 A+	
	B-	RS485 B-	
	485G	RS485 GND	
serial port (RS232)	TXD	RS232 TXD	
	RXD	RS232 RXD	
	232G	RS232 GND	

1.4. Sensor wiring method



1.5. Switching wiring method



The external circuit driven by the following two points:

1. The external circuit should share with the controller;
2. When the external circuit is input at a low level, the input is valid, otherwise, the input is invalid.

The external circuit driven by the output switching quantity should meet the following two main points:

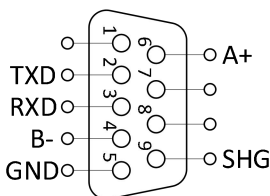
1. The external circuit should share with the controller;
2. The switching output is low.

Note: The maximum driving capacity of each switching output port is 500 mA. Please pay attention to the power of the load when connecting the load. Over the driving capacity of the output port may cause damage to the switching output port.

1.6. Serial connection method

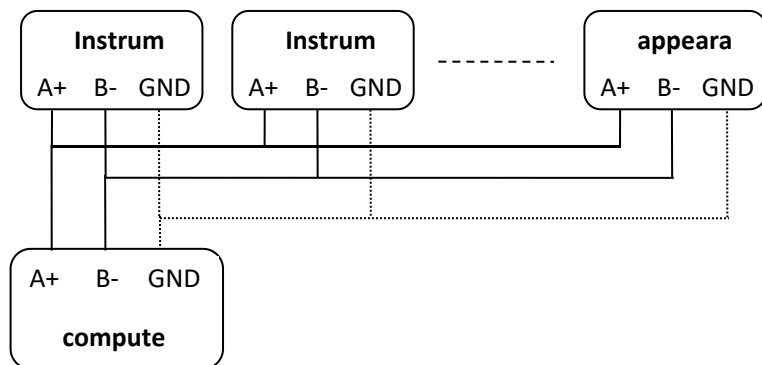
The controller is equipped with two serial ports (RS232+RS485) and the expansion interface is DB9 connector.

The interface is defined as follows:~

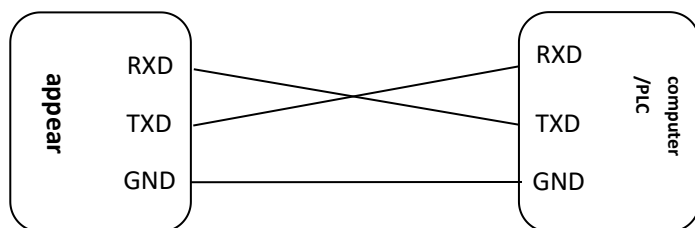


DB9 pin	specification
No.1 pin	empty
No.2 pin	RS232 (TXD)
No.3 pin	RS232 (RXD)
No.4 pin	RS485 (B-)
No.5 pin	RS232 (GND)
No.6 pin	RS485 (A+)
No.7 pin	empty
No.8 pin	empty
No.9 pin	SHG

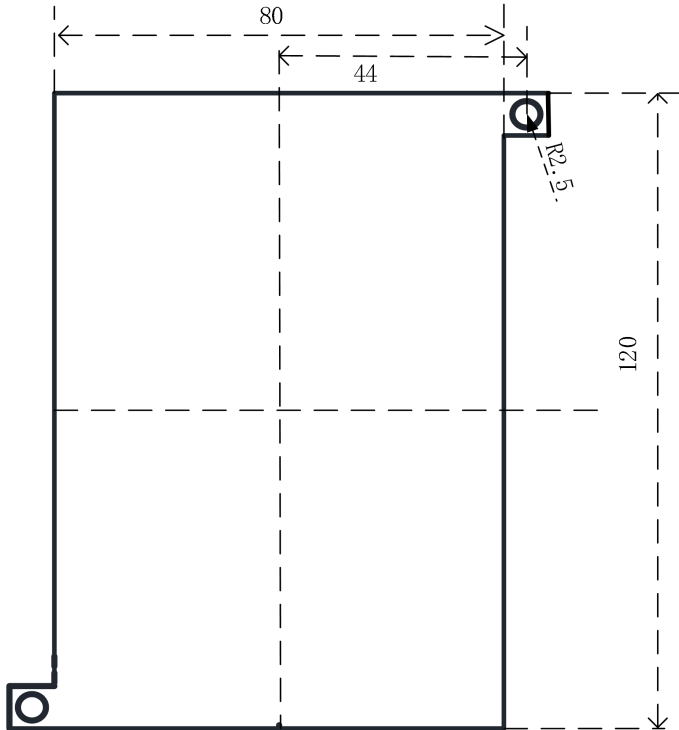
RS 485 Wiring signal:



RS 232 Wiring signal:



1.7.installation size



The figure above is the bottom view of the product,
with data given in mm

2. Function menu

Under the standby interface to enter  the function menu selection interface, and set and view the various function configuration of the controller. The main menu is shown in the following table:

num	project	explain
1	Calibration	Weight calibration for related operation.
2	weigh para	Weight acquisition and processing of the basic parameters.
3	scale para	Functional process controls the relevant parameters.
4	Recipe setting	And 20 sets of product Recipe parameters.
5	AI packaging	AI machine learning intelligent packaging function setting.
6	I/O	Switch volume function definition and port test.
7	Acc Data	Cumulative data and preset batch viewing and setting.
8	Comm setting	Serial port communication related parameter setting.
9	self-test	Packaging controller process self-test.
10	logic	Logical signal output settings.
13	system	Parameter reset, system language selection, and version viewing.

In addition to [13 system], each project has a password function, you can choose whether to open the project entry password.

All passwords are factory default "000000".

2.1. Weight calibration

The related operation of weight calibration in the project, the first installation of the product or the scale structure, such as the sensor or weighing platform, a weight calibration operation should be carried out to ensure the accurate weight display.

num	parameter	explain	starter
1.1	unit	①g ②kg ③t ④lb Select the unit for the system weight display.	②kg
1.2	point	①0 ②0.0 ③0.00 ④0.000 ⑤0.0000 Select the decimal number for the system weight.	③0.00
1.3	Mini-Div	①1d = 1 ②1d = 2 ③1d = 5 ④1d = 10	①1d = 1

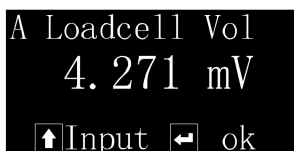
		⑤ 1d = 20 ⑥ 1d = 50 Select the minimum separation value displayed by the system weight.	
1.4	Max Range	Set the maximum weighing range. If the weight exceeds the set maximum range, the weight overflows the OFL or-OFL.	100.00
1.5	loadcell Vol	Displays the voltage signal size of the current sensor input. "ADOFL" or "ADOFL" means that the current sensor signal is abnormal.	
1.6	A zero cal	Empty table A and set  zero according to confirmation.	
1.7	A gain cal	Place the known weight of the weighing platform A for gain calibration. Enter  the exact weight of the put object after confirmation.	
1.8	B zero cal	Empty the B scale table and  calibration zero according to the confirmation.	
1.9	B gain cal	Place objects of known weight on the B weighing platform for gain calibration. Enter  the exact weight of the put	

		object after confirmation.	
1.10	PSW set	Password modification needs to enter the same password twice to modify successfully.	

2.1.1. Weight calibration process

1. Set the weight decimal point, unit, minimum scale, maximum range and other parameters used by the system.
2. Zero point calibration.

Enter the [1.6 A zero cal] interface, as shown in the following figure:



The main display is the voltage size of the current scale A scale sensor. At this time, empty the scale table, wait for the displayed sensor voltage value to stabilize, press the

confirmation key  to complete the zero calibration, and the current sensor voltage signal size to zero calibration.

3. Gain calibration.

Enter the [1.7 A gain cal interface, as shown in the figure below:



Display the voltage size of the current A scale sensor relative to the zero point, then put the weight on the scale table, wait for the displayed voltage value to stabilize, press

the confirmation key .



After inputting the weight in the outgoing interface, press

the confirmation button  to complete the gain calibration, and automatically perform the gain calibration of the relative zero voltage and the input weight.

Note: B calibration is the same as A calibration.

2.1.2. Quick calibration zero point

In the stop state, press the controller key  for about 3s, release the buzzer sound, and quickly set the current state to zero.

Note: The quick weight needs to be stable at zero point.

2.1.3. Calibrate matters needing attention

1. When zero calibration and gain calibration, if the sensor voltage shows "ADOFL" or "ADOFL", the current sensor signal is not normal, check whether the line connection and installation of the sensor is normal, and whether the sensor is damaged.
2. When zero calibration and gain calibration, the displayed sensor voltage is stable, check whether the sensor line connection and installation is normal, and whether the sensor is damaged.
3. Zero point calibration and gain calibration support manual input of the sensor voltage value for calibration, just need to prompt the button  according to the calibration interface.

2.2. weighing parameters

The project sets the parameters of weight signal acquisition and processing functions.

num	parameter	explain		starter
2.1	weighing			
2.1.1	Zero Track	0~9d; The d represents the [1.3 min-Div] Work only in the stop state, and the weight value is stable within the positive and negative range of the setting value d.		0
2.1.2	Zero range	0~99%;When the zero operation is performed, the weight should be less than or equal to "[1.4 max range] * zero range".		10
2.1.3	Stab range	1~9d	The d represents the [1.3 mini Div] These two parameters	3
2.1.4	Stab time	0.1~9.9s	work together to determine whether the weight is stable. Taking all the weight values in the "stability time", the difference between the maximum and the minimum value "stability range", the weight value is considered stable.	0.8

2.1.5	A filter I	0~9;The strength level of the software digital filtering, and set the appropriate filter level parameter value according to the actual debugging effect of the equipment.	5
2.1.6	B filter	0: the weakest filter, fast weight response, poor anti-vibration effect; 9: the strongest filter, slow weight response, good anti-vibration effect.	5
2.1.7	Disc Filter	0~9;The software digital filtering strength level in the unloading state, generally set to a small size, can speed up the speed of weight response during unloading.	2
2.1.8	Power Zero	① OFF ② ON After opening, the controller will automatically perform a zero-clearing operation each time it is turned on.	① OFF
2.2	password		
2.2.1	switch	① OFF/② ON Select the password switch for the item.	① OFF
2.2.2	modify	Password modification needs to enter the same password twice to modify successfully.	

2.3. scale parameters

All parameters related to the device process control function are set in the project.

2.3.1. Work Mode

Relevant parameter settings for the working mode.

number	parameter	explain	starter
3.1	Work Mode		
3.1.1	work mode	① [Bin(AB combine)] ② [Bin (AB h-speed)] ③ [Bin(A Single)] ④ [Bin(B Single)] ⑤ [NoBin (h-speed)] ⑥ [NoBin(A first)] ⑦ [NoBin(AB wait)] ⑧ [NoBin(AB alone)] ⑨ [bulkMotex] ⑩ [bulk Both] ⑪ [bulk A)] ⑫ [bulkB] ⑬ [AB valve] ⑭ [Bin(BSR)] ⑮ [Bin(AB alone)] ⑯ [Bin Batching] See Chapter 3 for the corresponding workflow	② [Bin (AB h-speed)]

		description of different working modes.	
3.1.2	Feed mode	① [Independent]: Fast: the fast output is effective. Med: the Med output is effective. Slow: the slow output is effective. ② [Combination]: Fast: fast, med and slow signal output is effective. Med: medium and slow signal output is effective. Slow: the slow signal output is effective.	② [Combined feed]
3.1.3	Zero intvl	0~99 After each packing process, clear zero before packing starts. Note: The first scale is not cleared after starting.	0
3.1.4	Disclock	0~99.9s Only in the [Bin(AB combine)] mode, start the unloading interlocking time, and the other scale is not allowed to discharge before the end of the unloading interlocking time, so as to	0.0

		prevent the discharge from blocking the discharging port.	
3.1.5	Stop Clamp	For set the device to a stop state: ① [Ignore]: Do not control the action of the clip bag mechanism after stopping, and keep the state before stopping. ② [Unclamp]: keep the bag mechanism in pine bag state after stopping. ③ [Clamp]: keep the pocket mechanism in the pocket state after stopping. Note: This function does not work in bulk accumulation mode and valve scale mode.	① [Ignore]
3.1.6	pack mode	This function is effective in no relevant working mode. ① [Gross]: do not tare before adding. ② [Net]: tare before feeding.	② [Net]
3.1.7	Clr Zero	0~9.9s When this para is not set to 0, in the relevant working mode of no bucket scale, the zero clearance will be conducted after completing a packing process.	0.5

3.1.8	carry bag	① [Closed] ② [Standard]: Working mode is: "No bin (AB Alone)" After the packaging is completed, the "carry bag " signal will be output, waiting for the input to detect that the "carry bag" signal is valid and start the loose bag. Working mode is: "No Bin(h-speed) No Bin (A fist) No Bin(AB wait)" Before the bag is finished and the bag is placed, wait for the input "carry bag" signal, "carry bag" signal input is effective before starting the bag, and output "A carry bag" and "B carry bag " output 2S after closing; The working mode is: "Bin (AB combine)" "Bin (AB highway-speed)" "Bin (A single)" "Bin(B single)" After unloading, wait for the input of "carry bag" signal and "carry bag" signal input	① [Closed]
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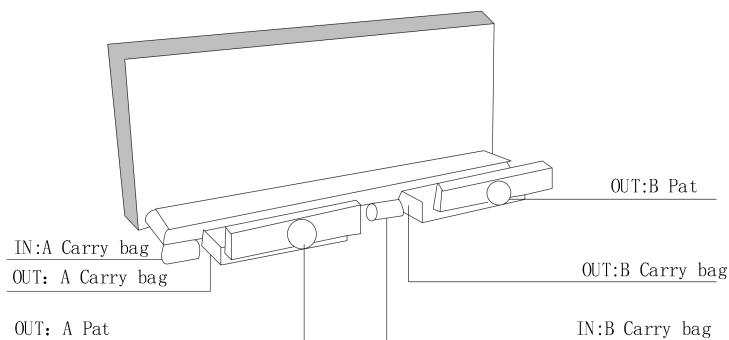
		effectively before start loose bag, etc. Meanwhile, output "carry bag" and "carry bag" output 2S. Note only to use "carry bag" and "carry bag" in AD combination and AB high-speed mode. ③ [Lift]: See the description in 2.3.1.1 for details. Note: [lift] only works in [no Bin(AB alone)] mode.	
3.1.9	unclamp Run	Set whether loose bags are allowed at runtime. ① [closed]: Do not respond to the loose bag signal when run ②. [standard]: When running, the input loose bag signal controller will perform the loose bag action and return to the waiting pocket state. ③ lift Note: This function only works in bucket scale mode.	② [Closed]
3.1.10	Tare Max	Tare function. No Bin mode, and set to the Net of pack mode, after running the bag, the controller determine	0
3.1.11	Tare Min	whether current Wt is satisfied"	0

		Tare Min $\leq$ current weight $\leq$ Tare Max" when satisfied start Tare and feeding; otherwise, " Tare anomaly " will be prompted for manual treatment. Close tare function when all tare Max and Tare Min are set to 0. Note: This function only works in NoBin scale mode.	
3.1.12	Force Wait	①[OFF]: After the first package completes the unclamp bag, wait for the other scale to start the belt conveyor, and if the other scale does not have the unclamp bag, start the belt conveyor directly without waiting for the other scale. ② [ON]: During operation, one of the scales first packs to complete the unclamp bag, no matter whether the other scale is in the bag, it will wait for the other scale to pack the loose bag before starting the belt conveyor Note: This parameter only works in [NoBin(AB wait)] mode.	② [OFF]
3.1.13	Block Num	1~2	1

		When the number of input signals for block CK in the bulk accumulation mode is 1, only "I41 A Block CK" is effective. When the cumulative value of bulk material is determined, the input of "Block CK" will be unloaded after the input signal of "Block CK" becomes invalid. Note: This function only works in bulk accumulation mode.	
3.1.14	Auto OFF	①[OFF]: During manual discharge, the discharge signal output shall be manually opened and closed.② [On]: When manual discharge, automatically close the discharge signal output below the value of discharge zero .	① [OFF]
3.1.15	Disc UI	① [Clamp]: After the fixed value of the bucket packaging, the bag should be packed before discharge. ② [unload allow]: In coordination with the automatic bag loading machine, the input signal of "Disc Allow" will start discharge.	① [clamp]

2.3.1.1. No bucket bag machine with [lift mode]

1. Schematic diagram of the lifting and push bag



2. Run the process

Take scale A for example

- (1) After the packaging of A scale is completed, prepare the loose bag for the delay time before starting the loose bag, and output the switch amount "Q46 A carry bag" signal at the same time to control the tray to rise.
- (2) [4.3.8 A Lift time] Close the output signal later.
- (3) If the "I30 A Carry bag" input signal is defined, the "I30 A Carry bag" signal is valid after the tray is valid, and the "Q9 A Flap" signal is output to push the bag out.

(4) If no "I30 A carry bag" input signal is defined, the "Q9 A Flap" signal is output after waiting for [4.3.8 A lift time] to push the bag out.

(5) [4.4.9 Ext Flap] Close the pat signal and restart the packaging.

3. Feed delay time

[4.3.6 A Feed Dly], [4.3.7 BFeed Dly] and [4.3.10 B Safe Time].

When the A scale pushes the bag, the current B scale push bag status will be checked first. If the B scale has pushed the bag, and the time exceeds the "B scale bag time", but not exceeds the "B bag safe time" + "B scale bag time", then A pushes the bag and pushes the bag after the time arrives.

When pushing the B scale bag, the current A scale push bag status will be checked first. If scale A has pushed the bag, and the time exceeds "scale A against bag time", B does not push the bag, and then push the bag after the time arrives.

For example: Suppose [4.3.6 A Feed Dly] is set to 2 seconds, [4.3.7B Feed Dly] is set to 1 second, [4.3.10 B Safe Time] is set to 3 seconds. Then the A scale push bag has the following conditions:

1. If scale B is pushing the bag, but not more than 1 second, scale A pushes the bag.

2. If scale B is pushing the bag for more than 1 second, but not more than $1 + 3 = 4$ seconds, scale A does not push the bag, and the time exceeds 4 seconds before pushing the bag

3. If scale B is pushing the bag, the time has exceeded $1 + 3 = 4$ seconds, scale A pushes the bag.

The B scale push bag has the following conditions:

1. If scale A is pushing the bag, but not more than 2 seconds, scale B does not push the bag.
2. If scale A is pushing the bag, the time has exceeded 2 seconds, scale B pushes the bag.

2.3.2. Seat bag / tangent line

The controller has the control function of sewing and tangent, which can control the sewing and tangent action of the sewing plane, and has the function of break detection. It can access the break detector signal for break detection, and alarm prompt when the break occurs. Relevant functional parameters are as follows:

num	parameter	explain	starter
3.2	Seat bag / tangent line		
3.2.1	Sew mode	① [Time sew ON]: When the "I23 sew check" signal input is effective, output the "Q36 sew" signal is valid and start [3.2.3 Sew off delay], and close the "Q36 sew" signal after the delay time. ② [Time sew OFF]: "I23 sew check" signal output "Q 36 sew" signal input effective, detect "I 22 cut ok" signal input invalid start [3.2.3 sew off delay],	② [Time Sew Off]

		and close the "Q36 sew" signal after the delay time reaches. See Section 2.3.2.1 for specific procedures.	
3.2.2	Sew Debounce	0~9.9s The king time of the "I23 sew" signal input. The signal is considered valid after the continuous duration of this time; The continuous invalid signal is considered invalid after this time. Prevent incorrect sewing errors caused by occasional signal interruption or conduction.	0.1
3.2.3	Sew Off Dly	0~99.9s Invalid seam packet signal output after this delay has ended.	4.0
3.2.4	Cut on delay	0~99.9s Start this delay after the sewing package, and output the "Q37 cut" signal after the delay.	0.2
3.2.5	Cut on time	Output time of the "Q37	1.5

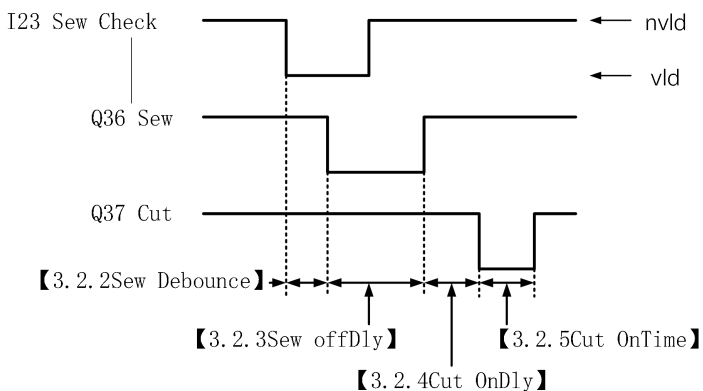
		cut" signal. If the defined "I22 cut ok" signal is available, the "I22 cut ok" signal is detected at the tangent output.	
3.2.6	break check	① [Off]: disconnection detection function is off. ② [On]: The disconnection detection function is on.	① [OFF]
3.2.7	Check OnDly	0~9.99s After the "Q36 sew" signal output is effective, the line break detection function starts after this delay time.	0.50
3.2.8	check Type	Set the type of "break detection" input signal, support the following two break detector signal input. ① [Pulse Check]: The input signal of "broken line detection" is the pulse signal. When the suture normally passes through the break detector, the break detector will continuously output the pulse signal to	①[Pulse Check]

		the controller. Line break occurs when there is no pulse signal input. ② [Level Check]: The input signal of "line break detection" is the level signal. When the suture passes through the break detector, the break detector sends a level signal to the controller. Line break is considered when there is no level signal input. The controller also supports two line detection inputs, namely "I 37 Line check 1" and "I 38 Line check 2".	
3.2.9	pulse period	0~9.99s [3.2.8 Detection type] This parameter is valid when set to [Pulse Detection]. Set the period time of the break detection pulse input. When there is no pulse signal input controller after the set cycle time, it is considered broken, alarm prompt.	0.10

3.2.10	Level Deb	0~9.99s [3.2.8 check type] This parameter is valid when set to [level detection]. Set the off-shake processing time of the break detection input signal to prevent the short jitter change of the input level signal from causing the detection error. The "Break detection" input signal remains valid beyond this time and the signal input is considered valid. "Break detection" input signal is invalid beyond this time the signal input is considered invalid.	0.10
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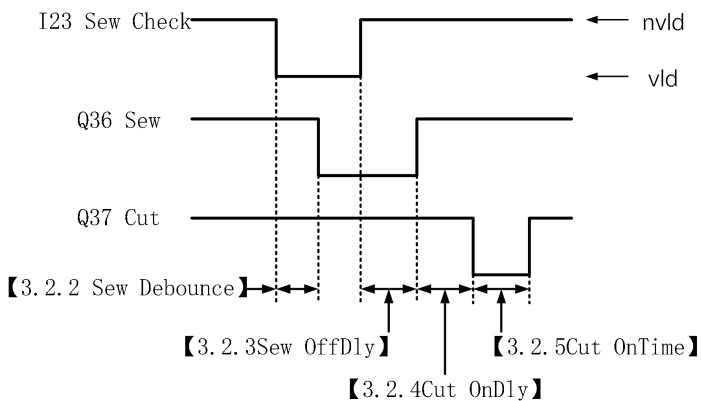
2.3.2.1. Details of the ack function

1. [3.2.1 Sew mode] is set to ① Timing Sew On], and the signal timing diagram of the packet tangent function is as follows:



【3.2.1Sew Mode】①Time Sew On

2. [3.2.1 Sew mode] set to ② [timing Sew off], the signal timing diagram of packet tangent function is as follows:



【3.2.1Sew Mode】②Time Sew Off

2.3.3. Small drop point move

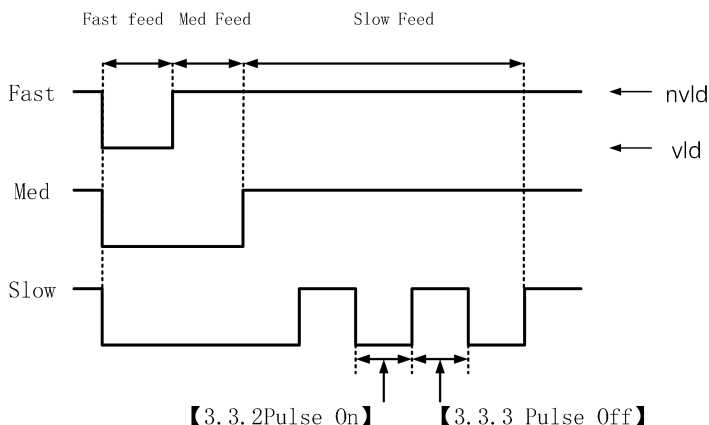
The small movement function can control the output signal in the form of pulse movement to control the feeding. The parameters are set as follows:

num	parameter	explain	starter
num	Slow Pulse		
3.3.1	Pulse Func	① [On]: The small projection signal will be output in the form of pulse dot movement. ② [Off]: The small signal will be output at a normal level. Note: The small drop movement function only works during slow feeding (only the small drop signal output).	① OFF
3.3.2	Pulse On	0~99.9s Effective time of small output pulse dot.	0.5
3.3.3	Pulse Off	0~99.9s Invalid time of the small projection output pulse dot movement.	0.5

2.3.3.1. Detailed drop movement function

The small drop movement function only works in the slow feeding

process. The following figure shows the output sequence of the feeding signal when the parameter [3.1.2 feed mode] is set to ② [combination].



2.3.4. Discharge vibration

The discharge vibration function works in the bucket scale and bulk accumulation mode.

When there is a bucket scale packaging liquidity is not very good or has a certain sticky material, there may be an adhesive situation when unloading, resulting in some materials can not be normally released from the weighing bucket.

The discharge vibration function can detect when the discharge timeout occurs, the corresponding vibration signal is output to control the vibrator or air hammer, and the symmetrical heavy bucket for vibration, so as to achieve the purpose of the material attached to the weighing bucket.

Setting [3.4.5 Shake out] to ① [discharge] can also realize the function of material vibration attached to the weighing bucket by directly controlling the opening and closing of the discharge door.

The relevant parameters of the discharge vibration function are set as follows:

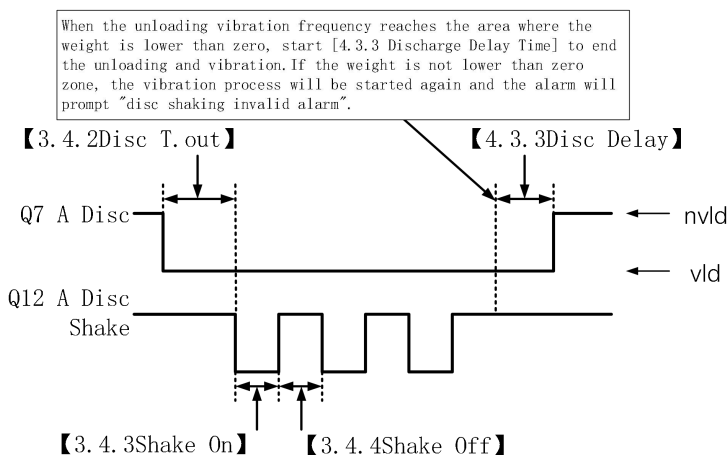
num	parameter	explain	starter
3.4	Discharge Shake		
3.4.1	Shake Num	0~99 Number of discharge vibration signal output. After the number of discharge vibration, if the current weight is lower than [4.2.16 Total Tar], end the vibration, and end the discharge after starting [4.3.3 Disc Delay]. After the number of discharge vibration, if the current weight is not lower than [4.2.16 Total Tar], then alarm "discharge vibration invalid alarm", and continue to open the next round of vibration cycle process. When the unloading vibration function is closed when the discharge vibration number is set	0

		to 0.	
3.4.2	Disc T.out	0.0~99.9s This time is started at the beginning of unloading. If the unloading is still not completed after this time (the weight is not lower than [4.2.16 Total Tar]), the unloading is considered overtime and the unloading vibration output is started.	2.0
3.4.3	Shake On	0.0~99.9s discharge vibration signal output effective time.	0.5
3.4.4	Shake Off	0.0~99.9s discharge vibration signal output invalid time.	0.5
3.4.5	shake out	① [Discharge]: directly control the "discharge" signal when discharging the vibration, and vibrate the material by controlling the unloading door switch. ② [Disc Shake]: output "discharge vibration" signal during unloading vibration, and vibrate materials by controlling vibrator or air	② [Disc Shake]

		hammer.	
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2.3.4.1. Discharge vibration function details

Taking scale A as an example, the time sequence diagram of the unloading vibrating function signal is as follows:



2.3.5. Belt / code

Belt function: can control the belt conveyor start and stop for transporting the material bag after the package is finished.

Code function: used to control the coding machine, and print the coding on the packaging bag.

The relevant parameters are as follows:

num	parameter	explain	starter
-----	-----------	---------	---------

3.5 Belt / coding			
3.5.1	Belt on Delay	0.0~99.9s Start the delay time of belt conveying, start this time after the loose bag, and output the "Q35 belt " signal to control the rotation of the conveyor belt.	0.5
3.5.2	Belt On	0.0~99.9s Duration of the Q35 belt signal after the output. Note: When the time is set to 0, the "Q35 belt " signal is always output valid after the controller is running, causing the belt to rotate.	4.0
3.5.3	Code Func	Code the function switch.	①[OFF]
3.5.4	Code on delay	0.0~99.9s Start this delay when clip the bag, and output the "code" signal to control the code der.	0.5
3.5.5	Code on	0.0~99.9s Duration of the signal output.	0.5
3.5.6	Disc/feed	When setting the "code" signal output, whether to discharge (Bin scale or bulk material accumulation mode) or feeding (NoBin mode).	①[OFF]

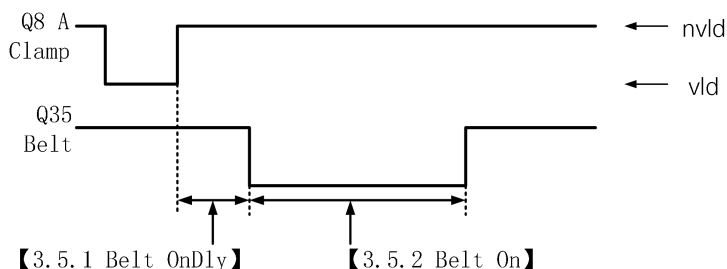
2.3.5.1. Detailed description of the belt function

Belt control function can be divided into two modes according to the setting of the parameter [3.5.2 belt On]. Here:

1. Single delivery mode ([3.5.2 belt On] set not 0)

When operating in this mode, when the loose bag starts [3.5.1 belt On-delay], output the "Q35 belt " signal to control the rotation of the belt conveyor, and close the "Q35 belt " signal output after continuing [3.5.2 belt On].

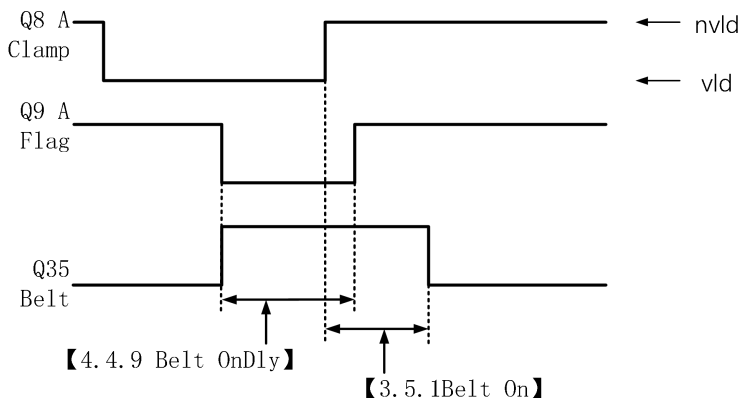
The signal timing is as follows:



2. Continuous operation mode ([3.5.2 belt opening time] is set to 0)

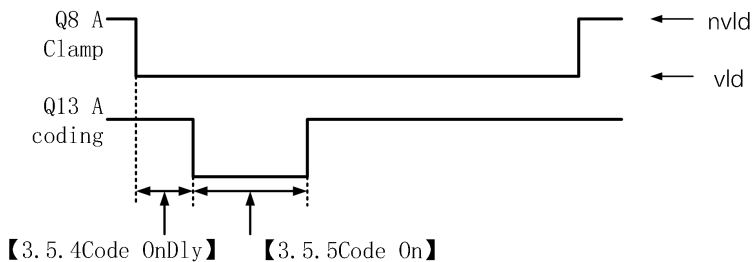
The "Q35 belt " signal is always valid when operating in this mode. Only when the bag function is opened, the "Q9 A Flap" signal is output and the [4.4.9 extra Flap] is executed, the "Q35 belt " signal will be closed. When the [3.5.1 belt On-delay] is started after the loose bag, and the delay time after the "Q35 belt " signal is output to control the rotation of the conveyor belt.

The signal timing is as follows:



2.3.5.2. The code-typing function is a detailed description

The coding function is started in the bag, and the "coding" signal is output to control the coding machine. Take scale A as an example, the signal timing diagram of the coding function is as follows:



2.3.6. Tractor setup

The relevant parameters of the tractor function are as follows:

num	parameter	explain	starter
3.6	Tractor		
3.6.1	Move OnDly	0.0~999.9s After the bag, output the "Q44 tractor move " signal after this time, and the control slider starts to move.	0.0
3.6.2	move Ontime	0.0~999.9s After this time, the slider has reached the packing position.	4.0
3.6.3	Clamp OnDly	0.0~999.9s After the loose bag, output the "Q45 tractor clamp " signal after this time to control the tractor bag.	1.0
3.6.4	Clip on time	0.0~999.9s After this time, the tractor bag is considered that the tractor clip action has been completed. Turn off the "Q44 tractor move " signal output and control the slider to return.	1.5
3.6.5	Keep the	0.0~999.9s	3.0

	bag	After the slider returns after this time, close the "Q45 tractor clamp" signal and control the tractor loose bag.	
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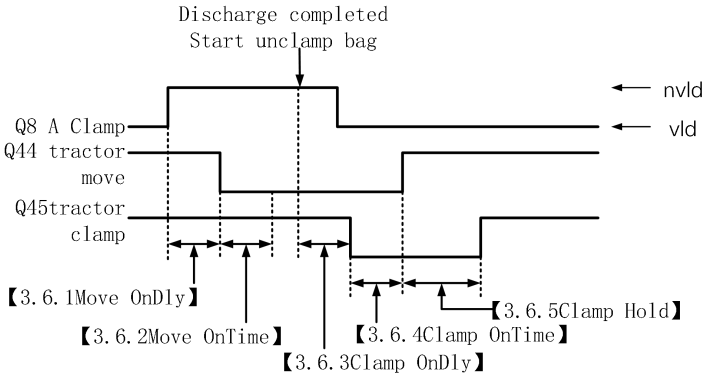
2.3.6.1. Details of the tractor function

The tractor workflow is as follows:

1. The pouch signal is valid.
2. After [3.6.1 Move OnDly] time.
3. Output the "Q44 tractor move " signal to control the tractor slide to move towards the packing machine.
4. After [3.6.2 Move OnTime], it is considered that the slider has reached the packing machine position.
5. Wait for the packer to unload and start the loose bag.
6. After [3.6.3 Clamp OnDly], output the "Q45 tractor clamp" signal, and control the clip of the tractor to clamp the bag mouth.
7. After [3.6.4 Clamp OnTime], it is considered that the tractor has been finished.
8. Close the "Q44 Tractor move " signal and control the tractor slider to return.
9. After [3.6.5 Clamp Hold], close the "Q45 tractor Clamp" signal and control the tractor clip to release the bag port.

10. After closing the "Q44 Tractor Move" signal, after [3.6.2 Move OnTime], the slider has returned to its original position and waits for the next tractor operation process.

The following working mode is "Bin (AB H-speed)" as an example. The timing diagram of the tractor function is as follows:



2.3.7. Material position setting

Set the functional parameters related to level signal input and feed output.

num	parameter	explain	starter
3.7	Material Level		
3.7.1	Supply Mode	① [None]: no material position. ② [Only Lower]: There is 1	① [None]

		cutting level (Lower level). ③ [Upper &Lower]: there are 2 material positions (Upper level, Lower level). ④ [Only Upper]: There is 1 material level (Upper level). Note: If the mode including the feeding level is selected, the feeding will not start when the feeding level signal input is invalid.	
3.7.2	Supply Tri	① [Off]: Turn off the feed supply and output function. ② [Lower trigger]: The feeding function is triggered when the signal input of "I 12 Lower level" is invalid. ③ [Upper trigger]: The feeding function is triggered when the input is invalid. Note: When the material level mode is set to [upper and lower level], the feed output continues until the feed level signal is valid.	①[OFF]
3.7.3	Supply On	After the feeding function is triggered, then output the "Q28 supply fill" signal after delaying this time.	0.0

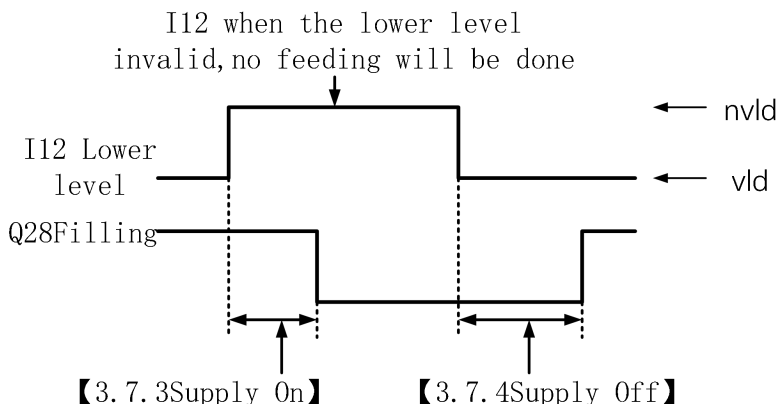
3.7.4	Supply Off	After the feeding, close the "Q28 supply fill" signal output after delaying this time.	3.0
3.7.5	Supply time	① [Run & Stop]. ② [Only Run].	① [Run & Stop]
3.7.6	Lower Delay	0.0~99.9s Only effective bucket scale related working mode. When the "I12 Lower level" signal is valid, one scale starts to feed, and the delay time is started. Before the end of the delay, if the other scale, no matter whether the "I12 Lower level" signal is effective, the other scale will start feeding.	4.0
3.7.7	In debounce	0.00~9.99s The shaking time of the signal input of "I 11. Upper level" and "I 12. Lower level". The signal is considered valid after the continuous duration of this time; The continuous invalid signal is considered invalid after this time. Prevent interference from	0.50

		occasional signal conduction.	instantaneous interruption or	
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2.3.7.1. Detailed specification of the feed supply function

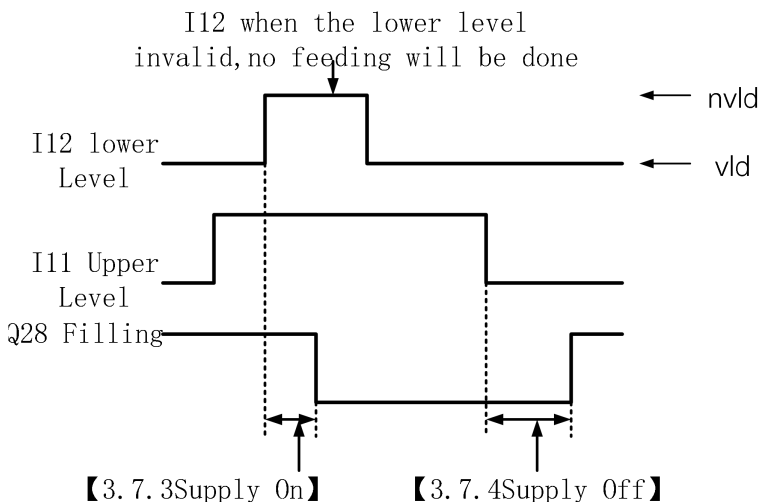
1. Material level mode: single Lower level; feed trigger: lower level trigger.

The timing diagram is as follows:



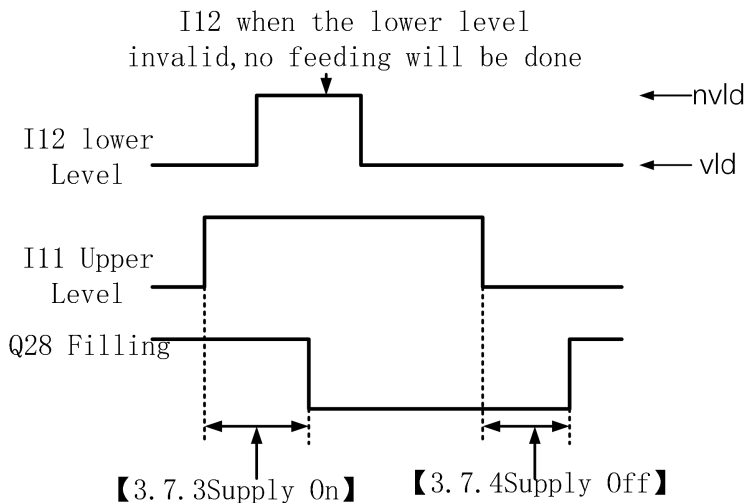
2. Material level mode: upper and lower level; feeding trigger: lower level trigger.

The timing diagram is as follows:



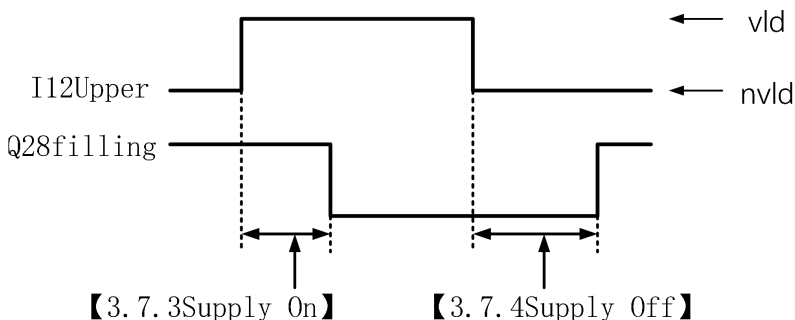
3. Material level mode: upper and lower level; feed trigger: Upper level trigger.

The timing diagram is as follows:



4. Material level mode: single_upper level; feeding trigger: upper level trigger.

The timing diagram is as follows:



2.3.8. Ultra fine powder extraction

The ultra-fine powder extraction function works in the bucket scale mode. It is often used in the equipment for packaging ultra-fine powder materials, which can control the lifting of the pumping rod cylinder, and conduct pumping and back blowing. The relevant parameters are as follows.

num	parameter	explain	starter
3.8	VSP Exhaust		
3.8.1	Fall Time	0.0~99.9s When the suction rod cylinder descend.	1.0
3.8.2	Rise Time	0.0~99.9s When the suction rod cylinder rises.	0.8
3.8.3	Exh time	0.0~99.9s Duration of the pumping action.	0.5

3.8.4	Blowback T	0.0~99.9s Duration of the backaction.	0.5
3.8.5	Rise Bef	0.0~99.9s Delay time before the pump cylinder.	0
3.8.6	Blow Bef	0.0~99.9s The delay time before the backward blowing action.	0.8
3.8.7	Exh Mode	① [Off]: Turn off the pumping function. ② [feeding]: only in the feeding. ③ [After feeding]: only after fixed value. ④ [All]: extraction after feeding and setting value.	② [OFF]

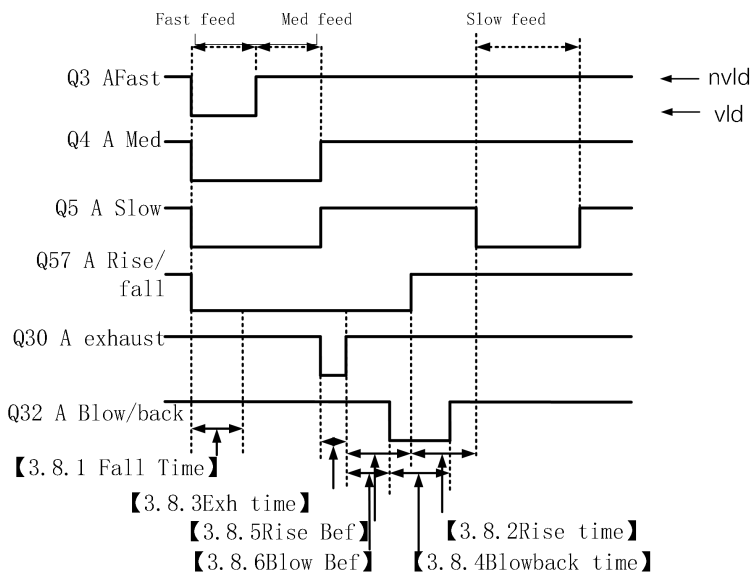
2.3.8.1. Exha extraction function in ultra fine powder feeding

The following takes the bucket packaging (AB independent of each other) working mode, [3.8.7 pumping mode] selects ② [feeding], A scale working alone as an example, and explains the pumping action process in detail:

1. After operation, at the beginning of fast feeding (large, medium and small projection output is effective), start [3.8.1 Fall time] timing, and output the "Q57 A Rise/fall" signal at the same time to control the descent of the suction rod cylinder, and extend the suction rod into the packaging

- bag.[3.8.1 Fall time] to the cylinder drop is completed.
2. After the end of the middle speed feeding (med feeding), stop the feeding, start [3.8.3 pumping time] time, and output the "Q30 A exhaust " signal at the same time, control the pumping rod, [3.8.3 pumping time], then close the "Q30 A exhaust " signal to end the pumping action.
 3. At this time, start [3.8.5 Rise Bef] and [3.8.6 Blow Bef], [3.8.5 Rise Bef] and open [3.8.2Rise time] at the same time, and close the "Q57 A Rise/fall" signal at the same time to control the rise of the pumping rod cylinder.[3.8.6 Blow Bef] to start [3.8.4 Blowback T], and output the "Q32 A Blow/back" signal at the same time, control the suction rod back, [3.8. 4 blowback T] to close the "Q32 A Blow/back" signal, and end the back action.[3.8.2 Rise time] The cylinder rise is considered to be complete.
 4. After the cylinder rises, start the slow feeding (the small output is effective) and continue to finish the material.

The timing diagram of the extraction function in the superfine powder feeding is as follows:



2.3.8.2. Extract function after ultra fine powder

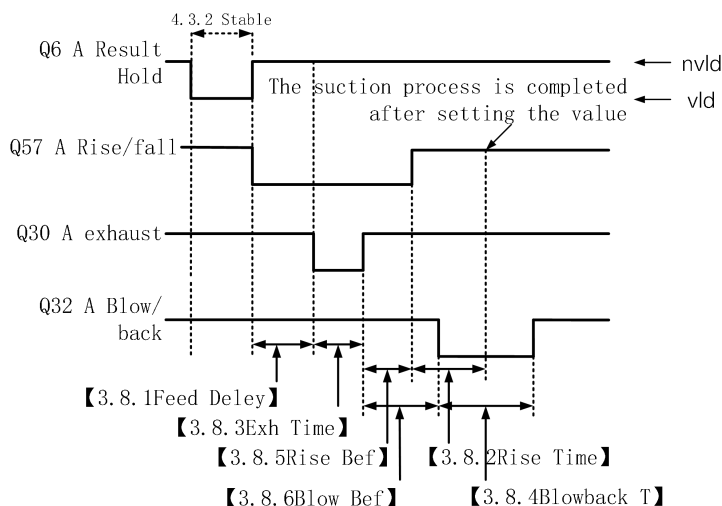
The following is NoBin(AB Alone) working mode, [3.8.7 Exh mode] select ② [feeding], A scale alone work as an example, detailed in the pumping action process:

1. After the fixed value, start [3.8.1 drop cylinder time] time, and output the "Q57 A Rise/fall" signal at the same time to control the pumping rod cylinder drop, and extend the pumping rod into the packaging bag.[3.8.1 Fall time] to the

cylinder drop is completed.

2. After the cylinder drops, start [3.8.3Exh time], and output the "Q30 A exhaust " signal at the same time to control the pumping rod, [3.8.3 Exh time] and close the "Q30 A exhaust " signal to end the pumping action.
3. At this time, start [3.8.5 Rise Bef] and [3.8.6 Blow Bef], [3.8.5 Rise Bef] and open [3.8.2Rise time] at the same time, and close the "Q57 A Rise/fall" signal at the same time to control the rise of the pumping rod cylinder.[3.8.6 Exd mode] Start [3.8.4Blowback T] after timing, and output the "Q32 A blow / back" signal at the same time to control the suction rod reverse, [3.8.4 Blowback T] close the "Q32 A blow / back" signal to end the reverse action.[3.8.2 Rise time] The cylinder rise is considered to be complete.
4. After the cylinder rises, the pumping function is completed after the value, and the follow-up process such as patting bag and loose bag is started.

The timing diagram of pumping function after ultra fine powder is as follows:



2.3.9. Parameter password

Set the password switch and password for the entry control parameters.

num	parameter	explain	starter
3.9	Parameter password		
3.9.1	switch	① OFF② ON Select the password switch for the item.	① OFF
3.9.2	modify	Password modification needs to enter the same password twice to modify successfully.	

2.4. Recipe setting

The controller has 20 sets of recipe parameters to be set. Users can set the commonly used recipe parameters in advance and switch to the corresponding recipe number when using them.

2.4.1. Recipe number

Sets the currently selected recipe number.

num	parameter	explain	starter
4.1	Recipe		
4.1.1	Rec.num	1~20 Choose the Recipe.	1

2.4.2. target value

Set the recipe parameters, such as the target value of the recipe number.

num	parameter	explain	starter
4.2	target value		
4.2.1	A target	Set the target weight for the package.	0.00
4.2.2	A Fast feed	When adding, when the weight value $\geq$ target value-the fast feed, close the fast investment; When set to 0, the fast output process is not started.	0.00

4.2.3	A Med feed	When adding, when the weight$\geq$ target value-med feed, close the med output; When set to 0, the med output process is not started.	0.00
4.2.4	A Slow feed	When adding, when the weight value$\geq$ target value-slow feed, close the slow output	0.00
4.2.5	A fast Dly	0.0~99.9s During the vibration elimination time at the beginning of the fast, during which the fast signal is always effective and not affected by the weight. Only after the end of the time to determine whether the weight reaches the advance amount to end the fast.	0.5
4.2.6	A Med Dly	0.0~99.9s The vibration time at the beginning of the med, during which the med signal is valid and not affected by the weight, and the end of the time to determine the weight to end the med.	0.5
4.2.7	A Slow Dly	0.0~99.9s For the vibration elimination	1.4

		time at the beginning of the slow, the slow drop signal is always effective and not affected by the weight. Only after the end of the time can we judge whether the weight reaches the slow throw drop value to end the slow.	
4.2.8	Total Target	In the bin(AB Combine) mode, set the weight of the material in a bag (multiple discharge in one bag). Note: In the bin(AB Combine) mode, the total target value should be an integer multiple of the single scale target value. Under the relevant working mode of bulk, the total shipment amount is set.	0.00
4.2.9	B target	Refer to 4.2.1~~4.2.7 A scale.	0.00
4.2.10	B Fast feed		0.00
4.2.11	B timed feed		0.00
4.2.12	B Slow feed		0.00
4.2.13	B fast Dly		0.5
4.2.14	B Med Dly		0.5
4.2.15	B Slow Dly		1.4
4.2.16	Zero area	[3.1.1 Work mode] Set to work	0.50

		when having bucket scale or bulk material accumulation scale. When unloading, when detecting the zero area value of the current weight of unloading, it considers that the unloading has been completed and prepares to close the unloading door.	
4.2.17	Feed speed	① [fast/slow]: fast and slow casting to achieve two material speed feeding. ② [Med/slow]: medium and slow investment to achieve two material speed feeding. ③ [Three speed]: fast, medium and slow investment to achieve three material speed feeding.	③ [three material speed]

2.4.3. Time setting

Set the relevant time parameters during the feeding process.

num	parameter	explain	starter
4.3	Time setting		
4.3.1	Feed Delay	0.0~99.9s Delay time before the start of the feeding.	0.5
4.3.2	Stable	0.0~99.9s	1.0

		Wait time after the current weight record.	
4.3.3	Disc delay	0.0~99.9s [3.1.1 Working mode] Set to work when there is a bucket scale or bulk material accumulation scale. When unloading, when the current weight [4.2.16 Zero area] is detected, the unloading has been completed, and the unloading delay time is started, and the unloading door is closed after the time reaches.	0.5
4.3.4	Clamp Dly	0.0~99.9s After the clip is effective, after the delay is delayed, the subsequent process, such as adding (NoBin scale) or unloading (Bin scale).	0.5
4.3.5	Unclamp Dly	0.0~99.9s Delay time before the automatic loose bag.	0.5
4.3.6	A feed Dly	0.0~60.0s [NoBin(AB wait)] mode, scales A and B shall start the bag time when starting the conveyor, and delay the feeding under scale A.	0.0

4.3.7	B feed Dly	0.0~60.0s In the NoBin mode (except in AB alone), start the bag time when starting the conveyor, and start the feeding under the B scale.	2.0
4.3.8	A lift time	0.0~60.0s [3.1.8 carry Bag] when set to [lift], please see section 2.3.1.1 for detailed description.	0.0
4.3.9	B lifting time		0.0
4.3.10	B Safe Time		0.0

2.4.4. Pack setting

Set up the racket bag action-related functions.

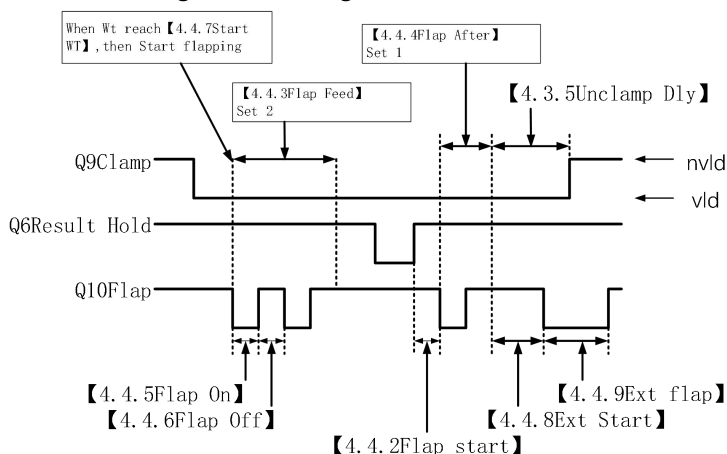
num	parameter	explain	starter
4.4	Pack setting		
4.4.1	Check Func	① [Off]: Close the pat bag function. ② [Feeding]: only beat the bag in the feeding. ③ [After feeding]: only beat the bag after the fixed value. ④ [All]: beat the bag after adding the ingredients and determining the value.	① [off]
4.4.2	Flap Start	0.0~60.0s The delay time before the start	0.5

		of the beat bag function after the fixed value.	
4.4.3	Flap feed	0~99 Number of beat bag signal pulses output by the beat bag function in the feeding.	0
4.4.4	flap after	0~99 The number of pulses of the bag signal that is output of the bag function after fixed value.	4
4.4.5	flap On	0.0~60.0s Effective time of the beat bag to output the pulse signal.	0.5
4.4.6	Flap Off	0.0~60.0s Invalid time of the beat pouch output pulse signal.	0.5
4.4.7	Start WT	In the process of feeding, after the starting weight of the current weight>, start the function.	0.00
4.4.8	Exh Start	0.0~60.0s The delay time of the extra beat bag action start, which starts at the same time as the [4.3.5 Unclamp Dly].	0.0
4.4.9	Exh Flap	0.0~60.0s After the number of the bag is completed, the additional time	0.0

		of the bag signal is often used in the pier bag function. This time is set longer than the time before [4.3.5 Unclamp Dly] to realize the bag, the bag is put down first, and then the bag mechanism is lifted.	
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2.4.4.1. Details of the pat bag function

Taking the NoBin mode as an example, the signal timing diagram of all the beat bags after feeding and fixed value is as follows:



2.4.5. Over/Under check

Excessive difference is a combination of excess or poor. In the

packaging process, when the packaging result is higher than a certain range of the target value, it is considered poor, while below a certain range is considered poor. This range is set according to the production demand.

num	parameter	explain	starter
4.5	Over/under		
4.5.1	Check Func	① [OFF] ② [On]: After the end of each feeding, the feeding results will be detected.	① [OFF]
4.5.2	Check Dly	0.0~99.9s After the delay of the feeding, the excess difference will be detected for the current weight to stabilize.	0.5
4.5.3	Over TOL	When the excess difference is detected, if the weighing result is $> \text{target value} + \text{Over TOL}$, it is judged as OVER;	0.00
4.5.4	Under TOL	When the excess underbalance is detected, if the weighing value is $< \text{target value} - \text{Under TOL}$, it is judged as underbalance.	0.00
4.5.5	Pause	① [OFF]: When the default occurs, the controller will alarm and continue to run after the alarm. ② [On]: When the default	① [OFF]

		occurs, the controller will alarm and wait for the user for processing. At this time, after clearing the alarm and continue to run, it can also give the "I 2 stop" signal to return to the stop state for processing.	
4.5.6	Interval	0~9999 How many times should packaging be checked for over or under tolerance every time. When set to 0, each package is check.	0

2.4.6. Valve scale blowing material

[3.1.1 Working mode] This function is valid when set to [AB, valve scale]. Set up the valve port scale related to the blowing material and other functions.

num	parameter	explain	starter
4.6	Valve blow detection		
4.6.1	Blow On	0.0~99.9s When the valve scale enters the process of slow feeding, control	0.0
4.6.2	Blow off	the "Q32 A Blow/back" or "Q32 B Blow/back" according to the effective and invalid time.	0.0
4.6.3	Valve Zero	After the bag, the weight is	0.00

		lower than the zero value of the valve scale and the feeding begins. Otherwise, do not clear the zero and directly start feeding.	
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2.4.7. Parameter password

Set the password switch and password for entering the recipe setting.

num	parameter	explain	starter
4.7	Parameter password		
4.7.1	switch	① OFF ② ON Select the password switch for the item.	① OFF
4.7.2	modify	Password modification needs to enter the same password twice to modify successfully.	

num	parameter	explain	starter
5.1	Function Settings		
5.1.1	Func set	The AI intelligent packaging function of the master switch When the function is turned on, the controller will automatically adjust the following parameters: [4.2.2 A fast feed] [4.2.3 A med Feed] [4.2.4 A slow feed] [4.2.6 A med feed] [4.2.7 A slow feed] [4.2.10 B fast feed] [4.2.11 B med feed] [4.2.12 B slow feed] [4.2.14 B med Dly] [4.2.15 B Slow Dly]	① [OFF]
5.1.2	A sampled	The AI intelligent packaging function will save the weighing data of the latest 100 times, carry out machine learning	0
5.1.3	B sampled	AI intelligent packaging algorithm calculation, and get the feeding related parameters suitable for the current state. The project can view the	0

		number of saved sampled data, enter 0 to clear the saved sampled data, and start statistical sampling.	
5.1.4	Mat type	① Granule ② powder Select the material type of packaging, and the AI intelligent packaging algorithm can be optimized for different types of materials to get the relevant parameters more suitable for the characteristics of this material.	① Granule

2.5. AI smart packaging

The controller has the AI intelligent packaging algorithm developed by Amp measurement and control for the packaging process, which can collect the characteristic parameters of each feeding process, calculate the collected data through the machine learning AI algorithm, and automatically adjust the parameters, so that the packaging scale can run fast and accurate.

2.5.1. Function Settings

AI intelligent packaging basic function Settings.

2.5.2. speed control

AI intelligent packaging function is related to packaging speed control parameters. The packaging speed can be set by automatic calculation and control by AI intelligent packaging algorithm, or the packaging speed to be controlled by customers manually, and the AI intelligent packaging algorithm can adjust the parameters to reach the set speed.

Note: If the manual packaging speed is too fast to exceed the speed achieved by the equipment, the packaging accuracy may be inaccurate.

num	parameter	explain	starter
5.2	speed control		
5.2.1	Ctrl mode	①Auto: The controller automatically controls the packaging speed ② Manual: Packaging speed is determined by the set parameters [5.2.3 slow Min] and [5.2.4 slow error].	① Auto
5.2.2	Speed Grade	0~4; [5.2.1 Ctrl mode] When it is automatic, the smaller the number, the faster.	1
5.2.3	Slow Min	0~9999ms [5.2.1 Ctrl mode] When set to manual, use these two time parameters to determine the standard time of slow.	800
5.2.4	Slow error		500

		$\text{slow DLY} + \text{Slow Min} \leq \text{standard time}$ of slow $\leq \text{slow DLY} + \text{Slow Min} + \text{Slow error}$. The intelligent packaging function controls the slow casting time always within the standard time.	
5.2.5	med Min	$0 \sim 9999\text{ms}$ These two time parameters to determine the standard time of med. $\text{med Dly} + \text{Med error} \leq \text{standard time}$ $\text{med} \leq \text{med Dly} + \text{Med error}$. The intelligent packaging function controls the med time through the adjustment of the advance parameters and always falls within the standard time.	800
5.2.6	Med error		500

2.5.3. Modify the switch

The correction switch of fast investment, med and slow investment can be separately controlled, and the AI intelligent packaging algorithm will no longer adjust the corresponding advance amount after turning off.

num	parameter	explain	starter
5.3	Modify the switch		
5.3.1	fast AI	① [OFF]: do not correct the fast feed parameter	② [ON]

		②[ON]	
5.3.2	Med AI	① [OFF]: Do not modify the med feed parameters ②[ON]	②[ON]
5.3.3	slow AI	① [OFF]: do not correct the slow drop value parameter ②[ON]	②[ON]

2.5.4. Parameter password

Set the password switch and password to enter the AI smart package.

num	parameter	explain	starter
5.4	Parameter password		
5.4.1	switch	①Off/② On Select the password switch for the item.	① off
5.4.2	modify	Password modification needs to enter the same password twice to modify successfully.	

2.6. switching value

The functions corresponding to the switching volume input and output port can be defined, and the switching volume test function can be used to test whether the external switching volume line works normally.

2.6.1. Enter the definition

Define the functions corresponding to the switching quantity input port IN1 to IN10. Select the switch port to set and select the features to define in the option box list.

num	parameter	explain	starter
6.1	Input the amount of switch		
6.1.1	IN1	Functional definition of the switch quantity input port. The list of options is detailed in 2.6.1.1.	I1. Start
6.1.2	IN2		I2. Stop
6.1.3	IN3		I20. A Zero
6.1.4	IN4		I21. B Zero
6.1.5	IN5		I4. A Manual Disc
6.1.6	IN6		I6. B Manual Disc
6.1.7	IN7		I8. A clamp/unclamp
6.1.8	IN8		I9. B clamp/unclamp
6.1.9	IN9		I10. Clr alarm
6.1.10	IN10		I0. NONE

2.6.1.1. List of switch quantity input functions

num	Function name	description
I0	NONE	No functional definition.
I1	Start	Start running.
I2	Stop	bring to rest.
I3	Slow stop	Enter the stop process, after the completion of the packaging automatically stop running.
I4	A Manual Disc	Used to manually remove the material in the metering bucket. This input effectively opens the discharge door once, and effectively closes the discharge door again.
I5	A Man Disc L	Used to manually remove the material in the metering bucket. Open the discharge door when the input is valid, and close the discharge door if the input is invalid.
I6	B Manual Disc	Used to manually remove the material in the metering bucket. This input effectively opens the discharge door once, and effectively closes the discharge door again.
I7	B Man Disc L	Used to manually remove the

		material in the metering bucket. Open the discharge door when the input is valid, and close the discharge door if the input is invalid.
I18	A clamp/unclamp	A scale clamp / loose bag operation input signal.
I19	B clamp/unclamp	B Scale clamp / loose bag operation input signal.
I10	Clr alarm	Clear the alarm status.
I11	upper level	Detection of input signal of hopper loading level. The material is considered to have reached the loading level when effective. Detailed functions are available in Section 2.3.7.
I12	lower level	Detection of input signal of storage level. The material is considered to have reached the loading level. Detailed functions are available in Section 2.3.7.
I13	A Disc Close	If this input is defined, it effectively means that the discharge door is closed in place, and otherwise it is not closed in place. When the controller determines that the input is invalid, close the
I14	B Disc Close	

		large and small output. If the signal input is effective, if the feeding is needed, the feeding output will be restored.
I15	A Clamp OK	If this input is defined, valid means that the bag is in place, otherwise the bag is not in place. During discharge, if the signal is detected as invalid, the discharge output is closed.
I16	B Clamp OK	
I17	Manual Unload	Work in the cumulative mode. Used to manually remove the material from the lower reservoir in the stop state. The input is effective and the discharging output is invalid.
I18	L upper level	Bulk mode to connect the lower reservoir.
I19	L lower level	Bulk mode to connect the lower storage tank.
I20	A zero	A scale zero operation.
I21	B zero	Effectively conduct a B scale zero clearance operation.
I 22	cut ok	If the input is defined, the valid input is detected when the tangent action is considered complete, and the tangent is ended.
I 23	sew check	Used to check whether the bag reaches the seam charter position.

		See Section 2.3.2.1 for details.
I 24	NONE	No functional definition.
I 25	NONE	No functional definition.
I 26	NONE	No functional definition.
I 27	NONE	No functional definition.
I 28	NONE	No functional definition.
I 29	NONE	No functional definition.
I 30	A Carry bag	NoBin (AB alone) mode, for bag machine matching signal. See [3.1.8 carry bag] for details.
I 31	B Carry bag	
I 32	AI Pack DSC	When this input is valid, the AI intelligent packaging function is prohibited.
I 33	A start	Start the A scale run separately.
I 34	A Stop	Stop the A scale from running separately.
I 35	B start	Start the B scale running separately.
I 36	B Stop	Stop the B scale from running separately.
I 37	Line check 1	The break detection function is used to connect the input signal of the break detector. See the related parameters of disconnection detection function in Section 2.3.2.
I 38	Line check 2	
I 39	print	Used to control print accumulated data when serial port communication

		is set to print function.
I 40	Start / Stop	Run starts when the input is valid and stop running when the input is invalid.
I41	A block CK	A scale material blocking detection input signal.
I42	B block CK	B Scale material blocking detection input signal.
I43	A disc allow	A scale discharge allows the input signal.
I44	B disc allow	B Scale discharge allows the input signal.
I 45	A feed close	If this input is defined, it effectively means that the feeding gate is closed in place, and otherwise, the closing is not in place. If the input is invalid before the controller, alarm output and wait. The signal input is judged valid. Enter the normal feeding process.
I 46	B feed close	

2.6.2. Output switch quantity

Define the functions corresponding to the switching volume output port OUT 1 to OUT 16. Select the switch port to set and select the features to define in the option box list.

num	parameter	explain	starter
-----	-----------	---------	---------

6.2	Output switch amount		
6.2.1	OUT1	Functional definition of the switch volume output port. The list of options is detailed in 2.6.2.1	Q1. running
6.2.2	OUT2		Q3. A fast
6.2.3	OUT3		Q4. A med
6.2.4	OUT4		Q5. A slow
6.2.5	OUT5		Q6. A Result Hold
6.2.6	OUT6		Q7. A discharge
6.2.7	OUT7		Q14. B fast
6.2.8	OUT8		Q15. B med
6.2.9	OUT9		Q16. B slow
6.2.10	OUT10		Q17. B Result Hold
6.2.11	OUT11		Q18. B discharge
6.2.12	OUT12		Q8. A Clamp bag
6.2.13	OUT13		Q25. Over/Under
6.2.14	OUT14		Q9. A Flap
6.2.15	OUT 15		Q26. warning
6.2.16	OUT16		Q2. Stop

2.6.2.1. List of switch volume output functions

num	Function name	description
Q0	NONE	No functional definition.
Q1	running	The output is valid when running the status.

Q2	stop	The output is valid when stopped in the state.
Q3	A fast	Fast feeding control signal.
Q4	A med	Medium-speed feeding control signal.
Q5	A slow	Slow feeding control signal.
Q6	A Result Hold	The output is valid when the feeding is completed, indicating that the feeding has been completed. The duration can be set with parameters [4.3.2 stable]. After the fixed value holding time ends, the current weight is recorded as the packaging result.
Q7	A discharge	Control the discharge door of the weighing bucket.
Q8	A Clamp bag	clamp bag function control signal, effective bag, invalid loose bag.
Q9	A Flap	Slap bag function control signal. Detailed functions are available in Section 2.4.4.
Q10	A zero area	The output is valid when the current weight of scale A is lower than [4.2.16 Total Tar].
Q11	A sever Mat	The output is effective when feeding.
Q12	A Disc Shake	Discharge vibration output control signal. Detailed functions are available in Section 2.3.4.
Q13	A coding	The output control signal of the

		typing function. Detailed functions are available in Section 2.3.5.2.
Q14	B fast	Fast feeding control signal.
Q15	B med	Medium-speed feeding control signal.
Q16	B slow	Slow feeding control signal.
Q17	B Result Hold	The output is valid when the feeding is completed, indicating that the feeding has been completed. The duration can be set with parameters [4.3.2 stable]. After the fixed value holding time ends, the current weight is recorded as the packaging result.
Q18	B discharge	Control the discharge door of the weighing bucket.
Q19	B zero area	The output is valid when the current weight of scale B is lower than [4.2.16 Total Tar].
Q20	B sever Mat	The output is effective when feeding.
Q21	B Clamp bag	Bag ouch mechanism control signal, effective bag, invalid loose bag.
Q22	B Disc Shake	Discharge vibration output control signal. Detailed functions are available in Section 2.3.4.
Q23	B Flap	Slap bag function control signal. Detailed functions are available in Section 2.4.4.

Q24	B coding	The output control signal of the typing function. Detailed functions are available in Section 2.3.5.2.
Q25	Over/Under	The excess default function is opened, and the output is effective when the excess default alarm occurs in the feeding result.
Q26	warning	The output is valid when the controller has an alarm.
Q27	batch done	The signal output is valid after the cumulative set batch.
Q28	supply fill	Supply material control output signal. When the signal is valid, start the feeding device to feed into the storage hopper. Detailed functions are available in Section 2.3.7.
Q29	staving	staving state output signal. The "I12 Lower level" signal input is invalid in the missing state.
Q30	A exhaust	Control the operation of discharge oil pump under scale A. Effective output of A in valve scale mode. The pumping function controls the pumping action of scale A.
Q31	B exhaust	The output of B in valve scale mode

		is valid. The pumping function controls the pumping action of the B scale.
Q32	A Blow/back	Valve port scale mode control A scale blowing mechanism. No scale mode controls the A scale.
Q33	B Blow/back	Valve port scale mode control B scale blowing mechanism. The bucket scale mode controls the B scale.
Q34	last scale	The signal output is valid when the slow stop signal is input or the last scale.
Q35	belt	Belt conveyor function output control signal. Detailed functions are available in Section 2.3.5.1.
Q36	sew	Sack output control signal. Detailed functions are available in Section 2.3.2.
Q37	cut	Tangent output control signal. Detailed functions are available in Section 2.3.2.
Q38	logic 1	Logic programming 1 functional output signal.
Q39	logic 2	Logic programming 2 functional output signal.
Q40	logic 3	Logic programming 3 function output

		signal.
Q41	logic 4	Logic programming 4 function output signal.
Q42	logic 5	Logic programming 5 function output signal.
Q43	logic 6	Logic programming 6 function output signal.
Q44	tractor move	This output switch amount is used to control the movement of the tractor slide. When the output is valid, the slider moves towards the packing machine; when the output is invalid, the slider moves towards the seam plane. See Section 2.3.6 for further details
Q45	tractor clamp	This output switch amount is used to control the action of the tractor clamp pocket. When the output is valid, the mechanism clips the bag mouth; when the output is invalid, the mechanism releases the bag mouth. See Section 2.3.6 for further details
Q46	A carry bag	When the matching function of AB independent mode is opened, the "bag allowed" signal will be output after the packaging is completed. See [3.1.8 carry bag] for details.
Q47	B carry bag	
Q48	A Running	The output is valid when the scale is in operation.

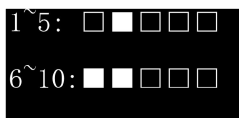
Q49	A Stop	A The output is valid when the scale is stopped.
Q50	B Running	B The output is valid when the scale is in the running state.
Q51	B Stop	B The output is valid when the scale is stopped.
Q52	A Finish	This output is valid when the scale A feeding is finished.
Q53	B Finish	This output is valid when the B scale is finished.
Q54	break alarm	When the break detection function detects the break condition, the alarm signal output is valid.
Q55	A tare EXC.	Output when abnormal skin weight is detected when peeling in no-bucket mode. See [3.1.10 Tare Max] [3.1.11 Tare Min] parameters for details.
Q56	B tare EXC.	
Q57	A Rise/fall	In the bucket scale mode, the lifting and fall of the pumping rod cylinder of scale A.
Q58	B Rise/fall	Control the rise and fall of the suction rod cylinder of B scale.
Q59	A over/under	The over/under function is turned on, and the output is effective when the feeding result of scale A appears.
Q60	B over/under	The over/under function is turned on, and the output is effective when the

		feeding result of B scale appears the over/under alarm.
--	--	---

2.6.3. Enter the test

num	parameter	explain	starter
6.3	Enter the test		

Input test is used to test the function of input switch quantity. The interface is shown in the figure below:



The upper and lower rows of 1~10 are the input port of 1~10 test, and the five blocks from left to right are the input states of IN 1 ~ 5 and IN 6 ~ 10.



The white squares are valid.



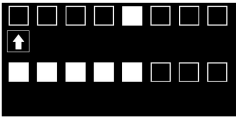
Black squares indicate an invalid value.

2.6.4. Output test

num	parameter	explain	starter
6.4	Output test		

Output test is used to test whether the output switch quantity works properly. The interface is shown in the

following figure:



The upper and lower rows of 1 to 16 are the output port 1 to 16 test, and the eight blocks from left to right are the output status of OUT 1 to 8 and ten output switching ports from OUT 9 to 16. The key moves the cursor

 and  it can switch the output valid / invalid status.



The white squares are valid.



Black squares indicate an invalid value.

2.6.5. Parameter password

Set the password switch and password for the entry switch quantity.

num	parameter	explain	starter
6.5	Parameter password		
6.5.1	switch	① Off / ② ON Select the password switch for the item.	① off
6.5.2	modify	Password modification needs to enter the same password twice to modify successfully.	

2.7. Cumulative data

View the batches and recipes for the controller.

2.7.1. Batch and cumulative

View the cumulative value of the controller to set the number of batches run. The relevant parameters are as follows:

num	parameter	explain	starter
7.1	bat& Acc.		
7.1.1	Batch set	Set the number of batches to be packaged after operation. When the number of runs reaches the set number of batches, the packaging process will be stopped and the alarm will be alerted. Turn it off when it is set to 0.	0
7.1.2	completed	If the number of batches is set, it displays the number of batches that are currently completed.	0
7.1.3	Manual Disc	① is not included in ② reckon in	① is not included in
7.1.4	Acc. Rng	0.00%~100.00% When the manual discharge is included in the cumulative	2.00

		function is opened, if the manually unloaded material exceeds the target value, the cumulative, otherwise it is not included in the cumulative.	
7.1.5	Acc. num	Total cumulative number of packages to view. Press the key to clear its accumulation. 	
7.1.6	Acc Wt	Total of weight view. Press the key to clear its accumulation. 	
7.1.7	Batch Wt	Collection and delivery of the cumulative check. Press the key to clear its accumulation. 	
7.1.8	A Num	A Scale accumulated data view.	
7.1.9	A Wt		
7.1.10	B Num	B Scale accumulated data view.	
7.1.11	B Wt		

2.7.2. Recipe cumulative

Check out the cumulative number of packs and the cumulative weight of each formula.

num	parameter	explain	starter
-----	-----------	---------	---------

7.2	Recipe Acc		
7.2.1	Rec.1 Acc	Check out the cumulative number of packs and the cumulative weight of each recipe.  Press the key to clear its accumulation.	
7.2.2	Rec.2 Acc		
7.2.3	Rec.3 Acc		
...			
...			
7.2.18	Rec.18 Acc		
7.2.19	Rec.19 Acc		
7.2.20	Rec.20 Acc		

2.7.3. Parameter password

Set the password switch and password for the entry switch quantity.

num	parameter	explain	starter
7.3	Parameter password		
7.3.1	switch	① Off / ② ON Select the password switch for the item.	① off
7.3.2	modify	Password modification needs to enter the same password twice to modify successfully.	

2.8. Comm setting

2.8.1. RS 232

The R S 232 communication serial port setting of the controller has the following relevant parameters:

num	parameter	explain	starter
8.1	RS 232		
8.1.1	Slave ID	Set the communication address of the device (slave station number).	1
8.1.2	protocol	① [Print / Acc.] ② [Print / Auto] ③ [Modbus-RTU-H]: Modbus-RTU communication protocol (two-word data high word first). ④ [Modbus-RTU-L]: Modbus-RTU communication protocol (two-word data low word first). ⑤[Cont1] ⑥[Cont2] ⑦ [Ex Modbus-H]: Modbus main station (dual word data high word in front) ⑧ [Ex Modbus-L]:	③[Modbus-RTU-H]

		Modbus main station (two-word data low word first)	
8.1.3	Baud rate	Set the baud rate for the serial port communication	
8.1.4	data format	① [7-E-1]: 7 data bit, even check, 1 stop bit ② [7-0-1]: 7 data bit, odd check, 1 stop bit ③ [8-N-1]: 8 data bit, no check, 1 stop bit ④ [8-E-1]: 8 data bit, even check, 1 stop bits ⑤ [8-0-1]: 8 Data bit, odd check, 1 stop bit	③[8-N-1]

2.8.1.1. print

When [8.1.2 protocol] is set to ① [print / Acc.], clicking the "Print" button on the main interface will output the cumulative information through the serial port, including cumulative times, cumulative weight and current time, in the following format:

```

-----
Sum:           6
Total:        17.75kg
2022.05.23   10:52
-----

```

When [8.1.2 protocol] is set to ① [print / auto], the printed result information will be output through the

serial port, including the correspondence address, formula number, cumulative times and the packaging result, and the format is as follows:

01,1, 7, 3.05

01,1, 8, 3.06

01,1, 9, 3.03

2.8.1.2. Cont

When [8.1.2 protocol] is set to ⑤ [Cont1], the serial port will continuously send the following data:

STX	Scale number	R	T	SP	SP	Cumulative times	,	cumulative weight	CRC	CR	LF
-----	-----------------	---	---	----	----	---------------------	---	----------------------	-----	----	----

among:

STX —— 1 bytes. Stator, 02H

device number —— 2 bytes. If the scale number is 01, that is, 30H 31H

R —— 52H

T —— 54H

SP —— 20H

Cumulative times —— 9 bytes, 000000000~999999999

, —— 2CH .

Accumulated weight is —— 10 bytes, with decimal points

CRC —— 2 bytes. Checksum, where all previous hexadecimal values are added and converted to decimal, then the last two digits are taken and converted to ASCII code. (Ten of them are in the first and one is

in the second).

CR —— 1 bytes, return car 0 DH.

LF —— 1 byte, line 0 AH.

When [8.1.2 protocol] is set to ⑥ [Cont2], the serial port will continuously send the following data:

STX	Scale number	R	T	Cumulative times	,	aggregate-value	CRC	CR	LF
------------	-----------------	----------	----------	---------------------	---	-----------------	------------	-----------	-----------

among:

STX —— 1 bytes. Stator, 02H

device number —— 2 bytes. If the scale number is 01, that is, 30H 31H

R —— 52H

T —— 54H

Cumulative times —— 4 bytes, 0000~9999

Accumulated value —— 9 bytes, including 8 bytes of data and 1 byte decimal point

, ——2CH 。

CRC —— 2 bytes. Checksum, where all previous hexadecimal values are added and converted to decimal, then the last two digits are taken and converted to ASCII code. (Ten of them are in the first and one is in the second).

CR —— 1 bytes, return car 0 DH.

LF —— 1 byte, line 0 AH.

2.8.2. RS 485

Refer to 2.8.1.

2.8.3. ExModbus

When the communication protocol is set to ExModbus, the controller can read the external equipment address as the main station, which is often used to read the frequency of the frequency converter for controlling the motor speed.

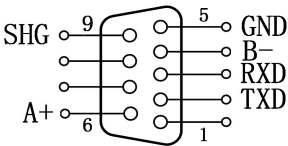
This feature supports up to two slave devices (channels A and B) and up to two read and write addresses (start 1 and 2).

num	parameter	explain	starter
8.3	Ex Modbus		
8.3.1	A Slave ID	0~99 Set the slave station number for channel A.	0
8.3.2	A Addr 1	0~65535 Set the read and write address 1 for channel A.	0
8.3.3	A Speed 1	1~9999999 Set the rotational speed 1 value of channel A.	0
8.3.4	A cof 1	0~9999999 The value of the rotational speed 1 coefficient 1 is written into the corresponding starting	0

		address 1.	
8.3.5	A Addr 2	0~65535 Set the read and write address 2 for channel A.	0
8.3.6	A speed 2	1~9999999 ; Set the rotational speed 2 value of channel A.	0
8.3.7	A cof 2	0~9999999 ; The value of the rotational speed 2 coefficient 2 is written into the corresponding starting address 2.	0
8.3.8~8.3.14 Channel B is set in the same way as channel A.			

2.8.4. Communication interface definition

View the communication interface definition.

order number	parameter	explain	starter
8.4	Export Def	View the definition of the controller communication interface: 	

2.8.5. Ethernet Settings

Effective when the distribution port is selected, the relevant

parameters are as follows:

num	parameter	explain	starter
8.5	Ethernet Settings		
8.5.1	IP address	Set up the IP address of the controller network port.	192.168.0.100
8.5.2	port number	Set the port number of the controller network port.	502
8.5.3	MAC	Sets the MAC address offset value for the network port. Note: Click the confirmation button on the main interface to view the MAC address of the controller network port.	0
8.5.4	protocol	1. [Modbus-TCP-H]: Modbus-TCP communication protocol (two-word data high word in the first). 2. [Modbus-TCP-L]: Modbus-TCP communication protocol (two-word data low word in the first).	1. [Modbus-TCP-H]

2.8.6. Parameter password

Set the password switch and password to enter the communication interface.

num	parameter	explain	starter
8.6	Parameter password		
8.6.1	switch	① OFF/② ON Select the password switch for the	① ON

		item.	
8.6.2	modify	Password modification needs to enter the same password twice to modify successfully.	

2.9. self-checking

The self-check function is designed to test whether the operation of each mechanical structure of the equipment is normal. The self-test process is the normal operation process, start the relevant equipment according to the current setting parameters. The difference between the two is that the self-test does not need the actual feeding operation, and the controller can automatically simulate the feeding process.

num	parameter	explain	starter
9.1	A self-Test	Press the key  to start the self-	
9.2	B self-Test	test process, the controller will prompt the current detailed steps and each status information, and press the key  to exit the self-test process.	

2.10. programming in logic

The controller supports the 6-way logic programming function. When the existing functions of the controller cannot meet the control requirements of the device, it can try to use the logic programming function to define auxiliary logic output signals outside the operation process of the controller to control the action of the device.

The logical programming setting parameters are as follows:

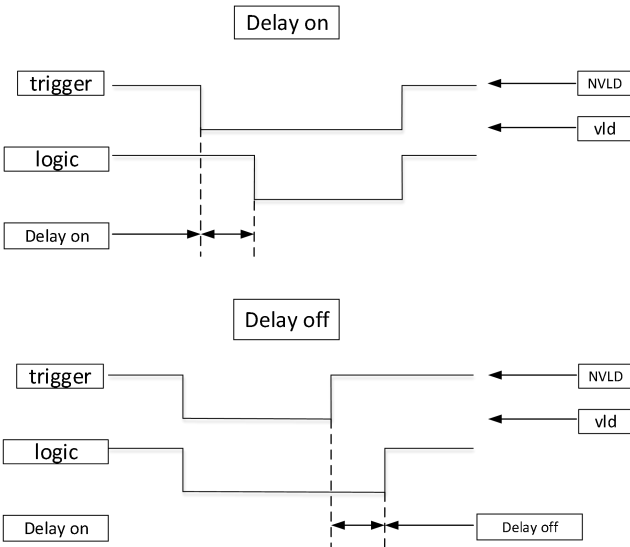
num	parameter	explain	starter
10.1	Logic 1		
10.1.1	logic type	Select the type of the logic programming. ① [close]: Turn off the logical output function. ② [Delay on] ③ [Delay off] ④ [delay on and off] ⑤ [OFF-ON Edge] ⑥ [ON-OFF Edge] ⑦[self Hold] ⑧[pulse] See Section 2.10.1	①[close]
10.1.2	Trig type	① [Signal trigger]: The logical output is triggered by a certain signal. ② [Conditional trigger]: a logic output is triggered by reaching a condition. ③ [Comm trigger]: The logical output is triggered by the communication command.	① [Signal trigger]
10.1.3	Sig output	Select the logical output signal to define to an OUT output port.	NONE
10.1.4	ON Time	Time when the logical output	0.0

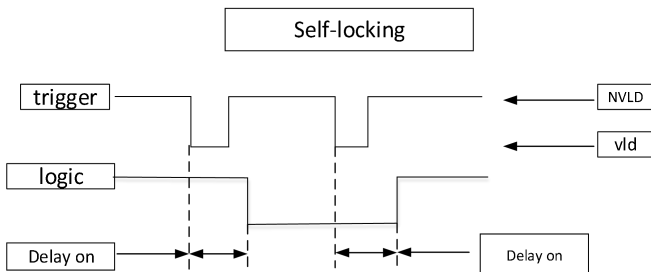
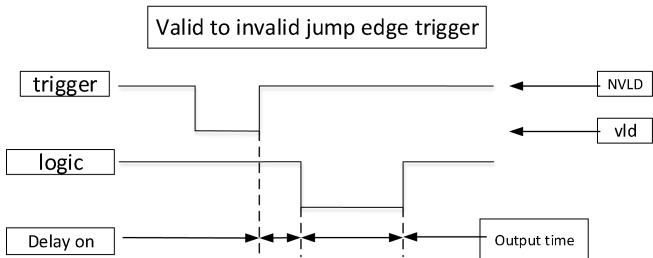
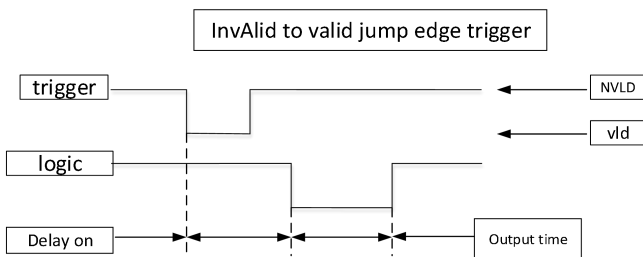
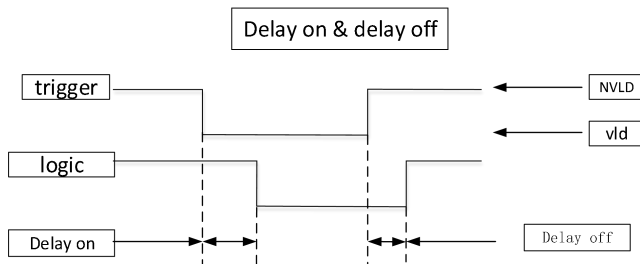
		signal is switched on.	
10.1.5	off Time	The time of the logical output signal delay disconnection.	0.0
10.1.6	Signal 1	Select the signal 1 used to trigger the logic output.	None
10.1.7	Sig logic	Select the logical relationship between the trigger signal 1 and the trigger signal 2 used to trigger the logic output. 1. [or]: trigger signal 1 and trigger signal 2 either signal can trigger the logical output. 2. [and]: Trigger signals 1 and trigger signal 2 need to be fully valid to trigger the logic output. 3. [XOR]: the trigger signal is between the trigger signal 1 and the trigger signal 2.	1. [or]
10.1.8	output time	[10.1.1 Logical type] This parameter is set when set to item 5 / 6. The effective time of output after the logical signal is triggered, and the logical output after the time to end.	0.0

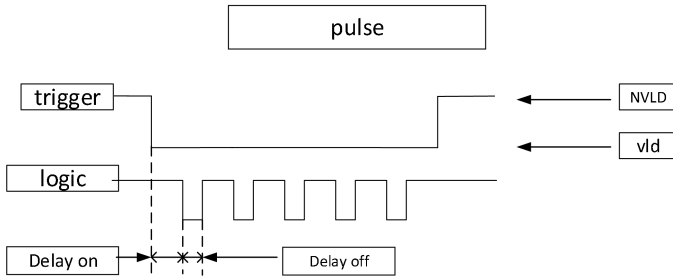
		When this time is set to 0, the logical output signal will only end by the reset signal.	
10.1.9	Init signal	[10.1.1 Logical type] This parameter is set when set to item 5 / 6. After the logical output is valid, the reset signal can reset the logical output to make the logical output signal invalid and end the logical output process.	None
10.1.10	Init type	1. [ON Init]: When the reset signal is effective, the reset logic output. 2. Off Init]: When the reset signal is invalid, the reset logic output.	1. [ON Init]
10.1.11	conditions	Select the conditions that trigger the logical output. 1. [More set value] 2. [less set Value] 3. [Inside Range] 4. [outside range]	1. [More set value]
10.1.12	value 1	Used to set the weight value for the corresponding trigger condition.	0
10.1.13	value 2		0
10.1.14	need state	2. [On]: After the weight meets the trigger condition and	1. [OFF]

		requires stability to trigger the logical output. 1. [Off]: The logical output can be triggered after the weight meets the trigger condition, without stability.	
10.1.15	signal 2	Select the signal 2 used to trigger the logical output.	None
10.1.16	Wt Choose	1. [scale A]:/2. [scale B]: Select which scale weight setpoint to trigger.	1. [scale A]

2.10.1. Logic output timing diagram







2.10.2. illustrate

The coding function is realized through logical programming: after the output signal of the bag is effective, the delay is 1s, and then the output OUT12 lasts for 2s, which is used to control the coding machine to print the code on the bag after the bag is completed.

The setting is as follows:

[10.1.1 Logic type]: Invalid-valid jump edge trigger

[10.1.4 Delayed connection]: 1s

[10.1.8 Output time]: 2s

[10.1.2 Trigger type]: Signal trigger

[10.1.6 Signal 1 setting]: pouch

[10.1.3 Signal output port]: OUT12

Through the coordination between different trigger signals, trigger conditions and logical programming signals, very flexible logical signals can be combined.

For example, the following logic should be

implemented: the real-time detection weight is higher than 100kg, namely, the output OUT10 for alarm indication. And the alarm delay is 2s, and the output OUT11 for 3s is used to control the discharge mechanism to unload the material.

The setting is as follows:

Logical programming 1: realize the detection weight above 100kg, the output OUT10.

[10.1.1 Logic type]: delay connection

[10.1.4 On time]: 0s

[10.1.2 Trigger type]: conditional trigger

[10.1.11 condition]: Weight is greater than the set point

[10.1.12 value 1]: 100kg

[10.1.3 Sig output]: OUT10

Logical programming 2: delay 2s after OUT10 is effective, and output 0 UT11 for 3s.

[10.2.1 Logic type]: Invalid-valid jump edge trigger

[10.2.4 On time]: 2s

[10.2.8 Output time]: 3s

[10.2.2 Trigger type]: Signal trigger

[10.2.6 Signal 1]: Logic output 1

[10.2.3 Sig output]: OUT11

2.13. system

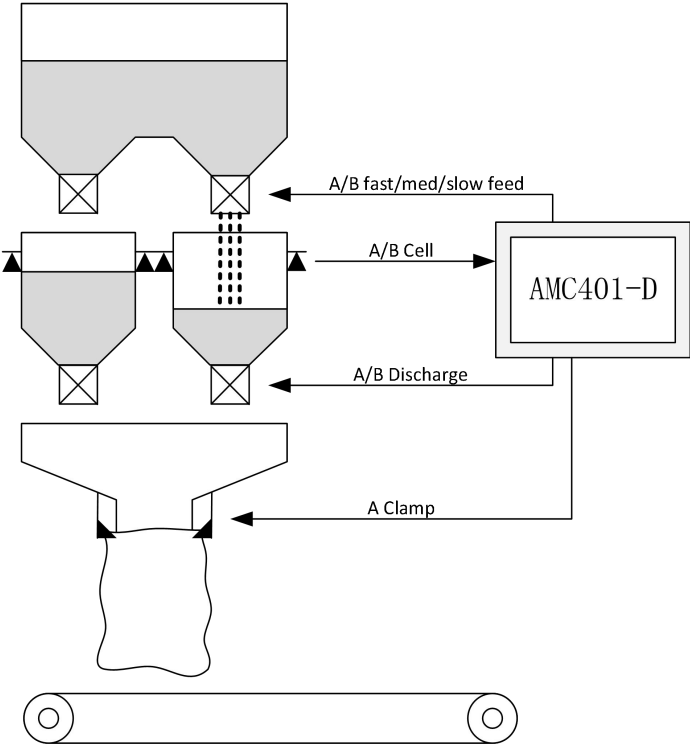
Include parameter reset, language, open machine interface and about the function.

num	parameter	explain	starter
13.1	Para. reset		
13.1.1	All para	 The key can reset its parameters.	
13.1.2	cal para		
13.1.3	Wt para		
13.1.4	scale para		
13.1.5	Recipe		
13.1.6	AI pack		
13.1.7	I/O		
13.1.8	Acc Data		
13.1.9	Comm port		
13.1.10	logic		
13.2	Language	1. [简体中文]: 2. [English]: Select the system display language.	1. [简体中文]
13.3	Opening interface	1. [off]: 2. [ON]: Select whether the opening interface.	2. [on]
13.4	about	View the version information for the controller.	

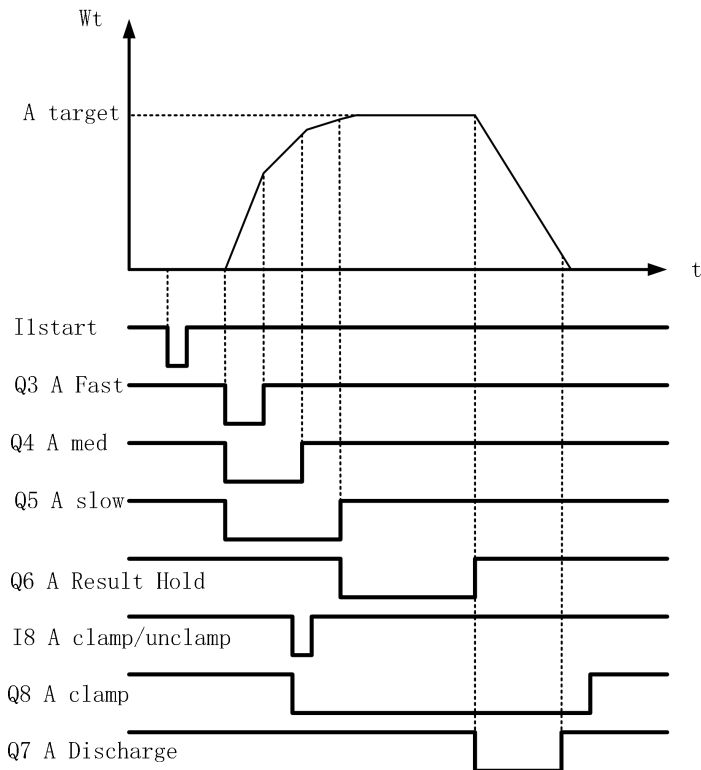
3. Workflow and functional description

3.1. Have bucket packaging

The basic structure diagram of the bucket packaging scale is as follows:



Taking scale A as an example, the basic operation flow and signal sequence diagram of the bucket package are as follows:



Explain the basic packaging process with the figure above:

1. Start running.
2. [4.3.1 feed Delay] time.
3. Open A big shot, when A weight value [4.2.1 A target] - [4.2.2 A fast feed], close A big shot and enter the A big shot.
4. When A weight value [4.2.1 A target] - [4.2.3 A med feed], A med is closed and A slow shot.
5. When A weight value [4.2.1 A target] - [4.2.4 A

- slow feed], close A slow and end the feeding.
6. [4.3.2 Stable].
 7. Start the discharge after judging that the clamp bag is finished.
 8. After the weight is lower than [4.2.16 Total Tar], start [4.3.3 Disc Delay], and close the discharge after the time reaches.
 9. Start [4.3.5 unclamp delay], time to back loose bag.
 10. Complete one packaging process and go back to step 2 to start a new packaging process cycle.

Note: The process does not include special functions such as excess difference detection, discharge vibration and material level. To understand a certain function, please check the chapter description of the corresponding function.

[3.1.1 Work mode] The work modes related to the bucket packaging are set up as follows:

- ① [Bin(AB combine)]
- ② [Bin (AB h-speed)]
- ③ [Bin (A single)]
- ④ [Bin (B single)]
- ⑭ [Bin (BSR)]
- ⑮ [Bin (AB Alone)]

Note: The above mode is only ⑮ [Bin (AB alone)] mode, and the rest modes are all single clip bag mechanism.

3.1.1.① [Bin (AB combine)]

This mode can be used when a bag of target material packaging is heavier than a single bucket.

When [3.1.15 Disc JU] is selected as ① [Clamp], scale A and scale B work at the same time, adding and discharge for many times, and only one loose bag after a certain number of times, to complete a combination process.

When [3.1.15 Disc JU] is selected as ② [unload allow], scale A and B work at the same time for multiple feeding. When the input signal of "I43 A disc allowed" is effective, the combination process will be completed after reaching A certain number of times.

for instance:

A bag of materials with a target value of 50kg needs to be packed, and the material weight of a single metering bucket is 30kg. At this time, this mode can be used to set [4.2.8 total target] to 50kg, [4.2.1A target] to 25kg, and [4.2.9 B target] to 25kg, so that the A / B scale will release the bag twice, and the weight of A bag is 50kg.

pay attention to:

The [4.2.1A target] and [4.2.9 B target] settings must be the same.

[4.2.8 Total target] The setting must be an integer multiple of the [4.2.1A target].

3.1.2.② [Bin (AB h-speed)]

When [3.1.15 Disc JU] selects ① [clamp], scale A and scale B work at the same time, sharing a clip bag mechanism. After the filling bag, the finished scale will be unloaded and loosen the bag, and the finished scale will wait for the next clip bag before discharge.

When [3.1.15 Disc JU] selection for ② [unload allow], A scale and B scale work at the same time, A scale and B scale work at the same time, "I43 A Disc allows" input signal effective finish the scale will unload, when A scale discharge, need to wait for [4.3.5unclamp delay] to judge "I43 A Disc allows" input signal is effective, effective to discharge another scale.

pay attention to:

[4.2.1A Target] and [4.2.9 B target] can be set to different values.[4.2.8 Total target] does not work in this mode.

3.1.3.③ [Bin (A single)]

When [3.1.15 Disc JU] is selected as ① clamp], only scale A works in this mode, and when [4.2.8 total target] is set to 0, it is the single discharge mode, and the bag is loose once for each discharge. When [4.2.8 total target] is set to an integer multiple of [4.2.1A target], it is the combination mode, and the bag is loosened only once for multiple discharge.

. When [3.1.15 Disc JU] is selected as ② [unload allow], only scale A works in this mode, and when [4.2.8 total target] is set to 0, it is A single discharge mode. If the input signal of "I43 A Disc

allow" is valid, the packing process will be completed once. When [4.2.8 Total target] is set to an integer multiple of [4.2.1A target], it is the combination mode, and the input signal of "I43 A unload allow" is valid, and the packaging process is completed only once after multiple discharge.

pay attention to:

[4.2.9 B Target] does not work in this mode.

[4.2.8 Total target] The setting must be an integer multiple of the [4.2.1A target].

3.1.4.④ [Bin (B single)]

When [3.1.15 Disc JU] is selected as ① [clip bag], only the B scale works in this mode, and when [4.2.8 total target value] is set to 0, it is a single discharge mode, and the bag is loose once for each discharge. When [4.2.8 total target] is set to an integer multiple of [4.2.9 B target], it is the combination mode, and the bag is loosened only once for multiple discharge.

When [3.1.15 Disc JU] is selected as ② [unload allowed], only scale B works in this mode. When [4.2.8 total target] is set to 0, it is a single discharge mode. If the input signal of "I43 A unload allow" is valid, the packing process will be completed once. When [4.2.8 total target] is set to an integer multiple of [4.2.9 B target], it is the combination mode, the input signal of "I43 A unload allows" is valid, and the packaging process is completed only once after multiple discharge.

pay attention to:

[4.2.1 A Target] does not work in this mode.

[4.2.8 Total target] The setting must be an integer multiple of the **[4.2.9 B target]**.

3.1.5.⑭ [Bin (BSR)]

This mode is A special working mode, where scale A is used as fast coarse feeding, and the remaining small weight is unloaded by scale A and scale B into the packaging bag to get the target weight.

[4.2.8 Total target] set to the weight of packaging for A bag of material, **[4.2.1A target]** set the weight to use A scale, this weight should be less than **[4.2.8 total target]**, working A scale quickly join the set target weight and discharge into the bag, the controller calculate the remaining weight and then start B scale add the remaining weight material, then discharge into the packaging bag.

The specific process is as follows:

1. Start running.
2. The A scale shall first feed according to the set **[4.2.1A target]**.
3. After scale A, calculate **[4.2.8 total target]** - feeding result of scale A, as B target value.
4. Start the B scale for feeding.
5. After feeding, the output switch amount "Q6 A fixed value" signal indicates the completion of feeding.
6. When **[3.1.15 discharge judgment]** is selected as

- ① [clip bag], discharge when effective clip bag is detected; select ② [discharge allowed], discharge when "I43 A discharge allowed" is detected.
7. The next cycle process starts after the discharge is finished.

3.1.6. ⑮ [Bin (AB alone)]

When [3.1.15Disc JU] is selected as ① [clamp], this mode A and B scales work at the same time, and there are two sets of bag mechanisms, which are equivalent to two single scales used independently without affecting each other.

When [3.1.15 unloading judgment] is selected as ② [unloading allow], this mode A and B scales work at the same time, and there are two sets of automatic bag loading machines. "I43 A disc allow" and "I44 B disc allow" work respectively, which is equivalent to the independent use of two single scales without affecting each other.

pay attention to:

[4.2.1A Target] and [4.2.9 B target] can be set to different values.[4.2.8 Total target] does not work in this mode.

3.1.7. ⑯ [AB Batching]

This mode A, B scale work at the same time, A set of bag mechanism, mostly used for the control of two kinds of AB ingredients.

After the AB scales start the feeding, unload all the materials in the AB scales into the same bag, and then loosen the bag for the next

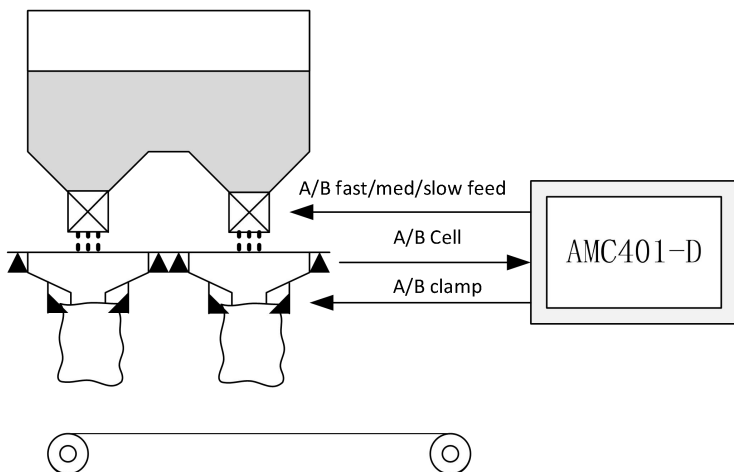
AB batching process.

pay attention to:

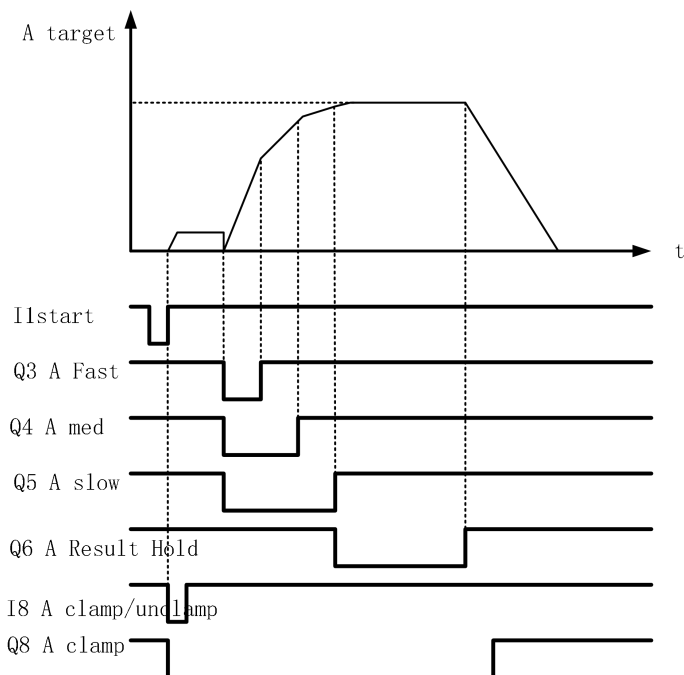
[4.2.1A Target] and [4.2.9 B target] can be set to different values. [4.2.8 Total target] does not work in this mode.

3.2. No bucket packaging

The basic structure of the scale is as follows:



Taking scale A as an example, the basic operation flow and signal sequence diagram of bucket packaging are as follows:



Explain the basic packaging process of the scale combined with the figure above:

1. Start the operation and wait for the pocket.
2. Clip bag.
3. [4.3.1 feed Delay] time.
4. If [3.1.6 pack mode] is set to ① [gross], then start adding directly without peeling.
If [3.1.6 pack mode] is set to ② [net], then stabilize the peel and start adding.
5. Open the large feed, when the weight value [4.2.1 A target] - [4.2.2 A fast feed], close the A shot and enter the A shot.

6. When the weight value [4.2.1 A target] - [4.2.3 A med feed], the A med is closed to enter the A slow feed.
7. When the weight value [4.2.1 A target] - [4.2.4 A slow feed], A slow feed is closed and the feeding is finished.
8. [4.3.2 stable].
9. Start [4.3.5 unclamp delay], time to back loose bag.
10. Complete a packaging process and go back to step 1 to start a new packaging process.

Note: The process does not include special functions such as excess deficit detection, patting bag and material level. To know a certain function, please check the chapter description of the corresponding function.

[3.1.1 Working mode] The working modes related to bucket packaging are set as follows:

- ⑤ [No Bin (H-speed)]
- ⑥ [No Bin (A First)]
- ⑦ [NoBin (AB wait)]
- ⑧ [No Bin (AB alone)]

The feeding process of the above modes is all the same, but the difference is the judgment of the pine bag time. Due to the different control of the conveyor transmission, there will be different pine bag modes.

3.2.1.⑤ [NoBin(H-speed)]

The controller does not control the conveyor operation in this mode.

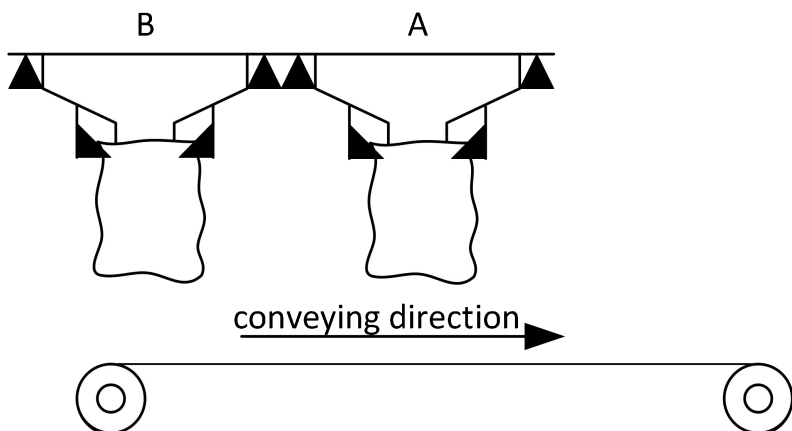
If one scale has been completed and the other scale has no clip bag, the scale will not wait for another scale.

If one scale has been completed and the other scale has not completed the filling bag, wait for the other scale to release the bag at the same time.

Note: In this mode, [4.3.7B feed dly] works. After starting the belt conveyor, scale B will start [4.3.7B feed dly]. Even if scale B has caught the bag, the time will start the next feeding.

3.2.2.⑥ [NoBin (A first)]

In this mode, the controller will actively control the operation of the belt conveyor ("Q35 belt conveyor"), start the belt conveyor operation according to the belt function parameters (see Section 2.3.5), and scale A is considered in front of scale B, as shown in the figure below:



If scale A has been completed, whether scale B has no bag, scale A will directly loose the bag and start the belt conveyor instead of waiting for the B scale.

If the scale B feeding has been completed and the scale A bag has not been finished, release the bag after the scale A and start the belt conveyor.

If the B scale has been finished and the A scale has no bag, the B scale will directly loose the bag and start the belt conveyor.

Note: In this mode, [4.3.7B feed dly] works. After starting the belt conveyor, scale B will start [4.3.7B feed dly]. Even if scale B has caught the bag, the time will start the next feeding.

3.2.3.⑦ [NoBin (AB wait)]

In this mode, the controller will actively control the operation of the belt conveyor ("Q35 belt "), and start the operation of the belt conveyor according to the belt function parameters (see Section 2.3.5

for details).

When the [3.1.12 ForeWait] function is set to close:

After one scale is finished and the bag is loose, and the other scale has no clip bag, the scale directly starts the belt conveyor.

If one of the scales is finished and loose the bag, and the other scale has not finished filling the bag, wait for the other scale to also finished and loose the bag, then start the belt conveyor.

When the [3.1.12 ForeWait] function is set to open:

After one of the scales is finished and loosen the bag, no matter whether the other scale has a clip bag, wait for another scale to finish and loosen the bag, and then start the belt conveyor.

pay attention to:

In this mode, [4.3.6 A feed dly] works. After starting the belt conveyor, scale A will start [4.3.6 A feed dly]. Even if scale A has caught the bag, the time will start the next feeding.

In this mode, [4.3.7B feed dly] works. After starting the belt conveyor, scale B will start [4.3.7 B feed dly]. Even if scale B has already caught the bag, the time will start the next feeding.

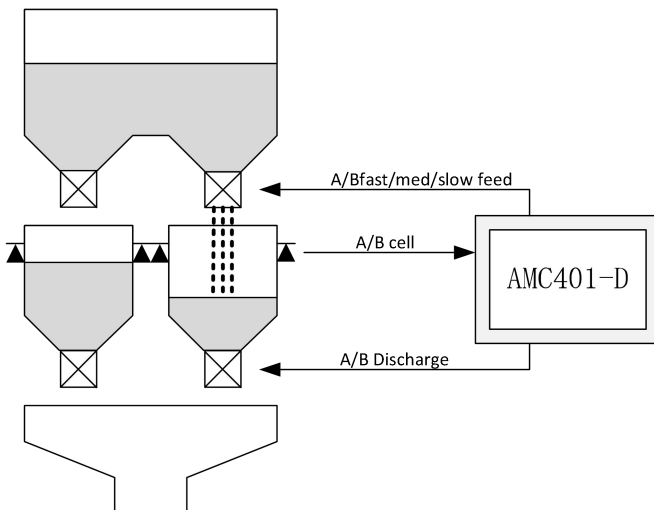
3.2.4.⑧ [NoBin (AB alone)]

The controller does not control the conveyor operation in this mode.

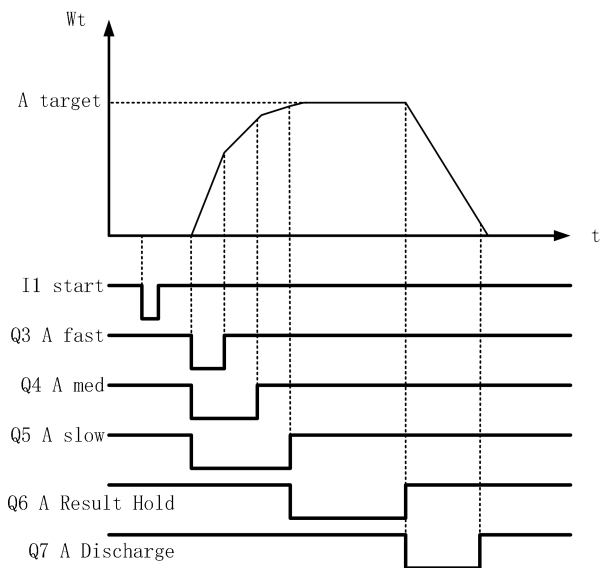
Scale A and scale B are completely independent of each other, equivalent to two independent single scale packaging controllers.

3.3. Scatter accumulation

The basic structure of the bulk scale is as follows:



Taking scale A as an example, the basic operation flow and signal timing diagram of bulk material accumulation are as follows:



Explain the basic packaging process with the figure above:

1. Start running.
2. [4.3.1 feed Delay] time.
3. Open A fast feed, when A weight value [4.2.1 A target] - [4.2.2 A fast feed], close A fast and enter the A med feed.
4. When A weight value [4.2.1 A target] - [4.2.3 A med feed], Amed is closed and entered into A slow feed.
5. When A weight value [4.2.1 A target] - [4.2.4 A slow feed], close A slow feed and end the feeding.
6. [4.3.2 Sable].
7. Start discharge.
8. After the weight is lower than [4.2.16zero area], start [4.3.3 Disc delay], and close the discharge after the time reaches.
9. Complete one packaging process and go back to step 2 to start a new packaging process cycle.

Note: The process does not include special functions such as excess difference detection, discharge vibration and material level. To understand a certain function, please check the chapter description of the corresponding function.

The parameter [4.2.8] is set as [total Target] in bulk accumulation mode.

When [4.2.8 total Target] is set to 0, when the receiving mode is used. When started, the controller will run continuously and will not automatically stop the feeding. It will stop the receiving process after

receiving the "I3. slow stop" signal.

When [4.2.8 total Target] is set without zero, after starting, the controller will run continuously and accumulate the completed weight. When the accumulated weight reaches the set total shipment amount, the feeding will be stopped and prompt "the bulk material is completed".

Note: In the delivery mode, the controller will automatically modify the target value of the last scale to improve the accuracy of the total shipment.

There are liquid storage tank material position and manual discharge control function in bulk accumulation mode.

1. When "I18 L upper level" and "I19 L lower level" are defined: "I18 L upper level" input is effective, output "Q30 A exhaust" signal; "I19 L lower level" is invalid, close "Q30 A exhaust " signal.
2. Only define "I18 tank loading level": When "I18 L upper level" input effectively, output "Q30 A exhaust " signal; close "Q30 A exhaust " signal by manually input "I17 manual disc" signal.
3. Only define "I19 L lower level": "Q30 A discharge / pumping" signal open by manual input "I17 manual Unload " signal, "I19 L lower level" invalid, close "Q30 A exhaust " signal.

[3.1.1 Working mode] The working modes related to the bulk material accumulation are set up as follows:

- ⑨ [Bulk Mutex]
- ⑩ [Bulk Both]
- ⑪ [bulk A]

⑫ [bulk B]

3.3.1. ⑨ [bulk Mutex]

In this mode, balance A and balance B scales are fed alternately.

1. After starting the operation, first A scale start to feed, B scale wait;
2. When scale A begins to unload, scale B begins to load;
3. When scale B begins to unload, scale A begins to load;
4. Scale A and scale B are mutually exclusive, not at the same time.

3.3.2. ⑩ [Bulk Both]

Scale A and scale B work independently and can be fed and unloaded without interfering with each other.

3.3.3. ⑪ [bulk A]

After starting, only A scales works, and B scales does not work.

3.3.4. ⑫ [bulk B]

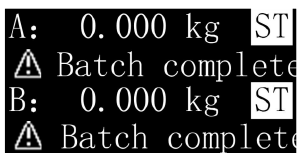
After starting only B scale works, A scale does not work.

3.4. Valve mouth scale

In the working mode of the valve scale, A / B scale works independently without interference with each other. The working flow of each scale of the valve scale is basically the same as the no-bucket packaging process, but it has the blowing function related to the valve scale (Section 2.4.6).

4. warning message

When the controller has an alarm, the alarm information will be prompted, as shown in the following figure:



A: 0.000 kg ST
⚠ Batch complete
B: 0.000 kg ST
⚠ Batch complete



Press the key or enter "I6 clear alarm" to clear the alarm.

Detailed description of the specific alarm is shown in the following table:

num	content	explain
1	⚠ Unknown error	An known error occurred, alarm alarm.
2	⚠ Batch completion	Set [7.1.1 batch setting], and has completed the set batch times, alarm prompt.
3	⚠ The bulk material has been completed	In the cumulative mode of bulk materials, the delivery mode is the time when [4.2.8 Total Tar] is not set for zero. After starting, the

		controller will be continuously run and accumulate the completed weight. When the accumulated weight reaches the set total shipment amount, the feeding will be stopped and prompt "accumulated completion of bulk materials".
4	 Overowed	The controller opens the [4.5.1 over/under] function, and the feeding connection result is the overdue difference situation.
5	 Loobag for bucket unloading	In the relevant mode of bucket scale, the loose bag error occurs during unloading, and the alarm prompt occurs.
6	 Scale A is overowed	The controller opens the [4.5.1 over/under] function, and the feeding result of scale A appears the excess difference situation.
7	 B scale overowed	The controller turns the function of [4.5.1 over/under] on, and the feeding result of scale B appears excess failure.
8	 A discharge vibration alarm	If the weight of the current weight is not lower than [4.2.16 zero area], the alarm "discharge vibration is invalid alarm".
9	 B discharge vibration alarm	B Check after the number of unloading vibration times, if the current weight is not lower than [4.2.16 zero area v], then alarm "unloading vibration invalid alarm".
10	 A scale self-	A scale self-learning error, alarm prompt.

	learning error	
11	 B scale self-learning error	B scale self-learning error, alarm prompt.
12	 The A-scale unloading door is open	In the relevant mode of bucket scale, the unloading door of scale A is not closed for error, and the alarm prompt.
13	 B Scale unloading door opens	In the relevant mode of bucket scale, the unloading door of scale B is not closed correctly, and the alarm indicates.
14	 A Scale add loose bag	In the mode of no bucket scale, the loose bag is wrong in scale A.
15	 B Scale add loose bag	No bucket scale related mode, B scale feeding loose bag wrong, alarm prompt.
16	 A loose bag when unloading	In the relevant mode, the loose bag error occurs when weighing A scales, alarm prompt.
17	 B loose bag when unloading	In the relevant mode of the bucket scale, the loose bag error occurs when unloading the B scale, and the alarm indicates.
18	 Broken line alarm	Suture disconnection error, alarm prompt.
19	 A The feeding gate opens	A scale feeding door is not closed error, alarm prompt.
20	 B feeding gate opens	B scale feeding door is not closed error, alarm prompt.

5. Common fault screening

When the controller is running, the bottom row of the display will prompt the functions and processes being performed by the current controller in real time. Through this prompt, you can judge the operation process of the current controller and help to troubleshoot. The controller shown in the figure below is in the projection process:



Rec. :01 STAB
0.202 kg
Fast

Some possible faults and troubleshooting methods of the controller are found in the following table:

num	content	explain
1	A DOFL / - ADOFL	Sensor signal is abnormal. 1. The sensor line is misconnected and has poor contact.(Note the four-wire system and six-wire connection method) 2. Sensor damage. 3. Overload range of the sensor.
2	OFL / -OFL	Weight overflow, and OFL is indicated when the hopper weight exceeds the [1.4 maximum range] set value. If the empty scale shows the OFL, please check: 1. [1.4 Max. range] Is it set correctly. 2. Calibration is abnormal, re-calibrate. 3. Whether the sensor is damaged.
3	The static	1. Whether the sensor line connection is

	state weight of the device is abnormal and unstable	correct and reliable, and whether the line is rusty and oxidized. - Whether the weighing mechanism is affected by external force or vibration. - Whether the sensor is damaged. - The sensor or controller is disturbed by the electrical equipment around the site, such as the motor, frequency converter, etc. [2.1.5 Filter] Whether the setting is appropriate.
4	Unable to start	- Whether the input line such as the external start button is normally connected to the controller (it can be viewed through the switching volume test). - Whether the input port of starting signal access is correctly defined as startup.
5	The result of feeding is not allowed	- The results displayed by the controller after the feeding are inaccurate: - Adjust the setting of large and medium investment advance amount of formula parameters. Ensure that the slow casting process has a long enough time to ensure the accuracy. - Whether the feeding mechanism is normal, whether the following material outlet is blocked, and whether the material flow is smooth. - The results displayed by the controller are accurate, but the actual reweighing results

		are inaccurate. (1) Display has a deviation from the actual weight and needs to be calibrated. (2) It is best to use weights or materials of the same weight as the target value for calibration, and pay attention to the uniform force of the scale table, and do not bias the load.
6	Accumulation is not allowed	When recording the cumulative value, the controller records the cumulative value at the end of the fixed value process, so check whether the time setting of [4.3.2 Stable] is sufficient. At the end of the fixed value holding time, the controller shows that the weight has stabilized and no longer beats significantly, so as to record the accurate cumulative result of the feeding.