



AMC401-6K

Multi-channel Small
Package Controller
Instruction Manual



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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)



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I. Basic information

1.1. Features and Specifications

The AMC401-6K is a multi-channel small package controller designed specifically for industrial weighing. The controller features a compact size, stable performance and rich interfaces. It can be widely applied to small packaging linear scales and other equipment in industrial sites.

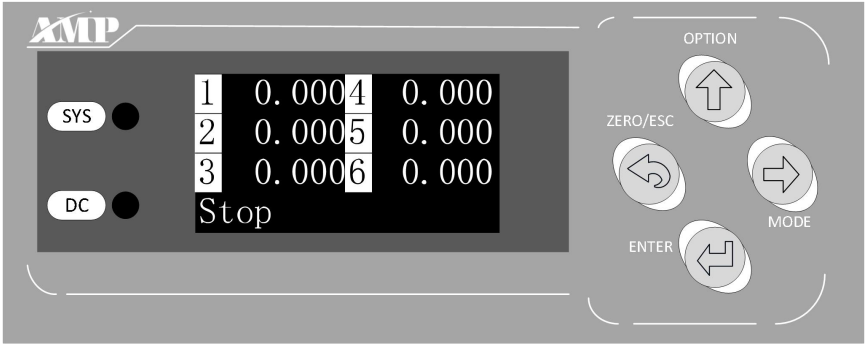
The AMC401-6K has the following basic characteristics:

- Working voltage: DC24V
- Weighing channels: up to 6 channels
- Sensor: DC5V/ 4-wire resistance strain bridge load cell
- Switch quantity: 9-channel input
 - 18-channel output
 - 6-channel input/output multiplexing port
 - 9-channel high-speed pulse output ports
- Standard communication interface: 2 serial port RS485 channels.
- Communication protocol: Modbus-RTU
- Analog output: Each channel corresponds to 2 analog output channels of 0~5V (a total of 12 analog output channels), which can control the feeding of the vibrating disc.
- Installation method: Rail snap-on installation

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	Ⓐ
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



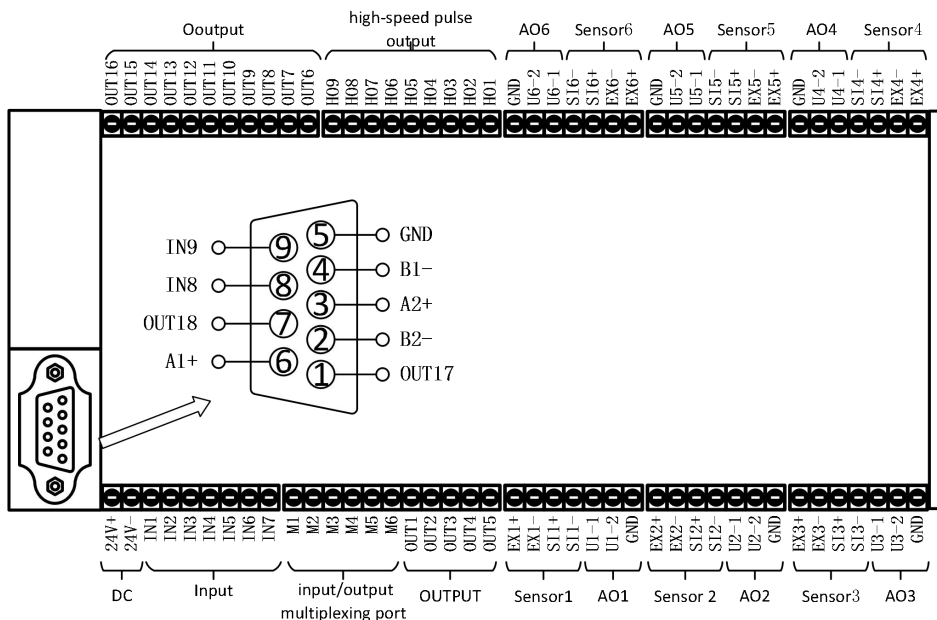
The front panel of the instrument is composed of a liquid crystal display screen, two indicator lights and four buttons.

The explanation is as follows:

Indicator light	
DC	It remains bright when powered on.
System	Internal system power-on indicator light
Key press	
ZERO/ESC	1. Press a key on the menu interface to exit the upper-level menu at one time. 2. The single-channel display interface keys perform the zeroing operation once. 3. Long press the single-channel display interface to perform the zero calibration operation. 4. In the numerical input interface, long press to clear the input data. 5. The alarm can be cleared when there is an alarm message.
OPTION	1. The main interface can be used to switch the single-channel display interface from 1# to 6#. 2. For the menu and selection interface,

	move the cursor upwards. 3. In the numerical input interface, increase the flashing number by 1.
 Mode	1. On the main interface, enter the menu interface. 2. In the menu and selection interface, move the cursor down. 3. In the numerical input interface, move the cursor to the right to flash.
 ENTER	1. Menu and selection interface, confirm entry to the current option. 2. In the numerical input and option interface, confirm to save the current data.
Display screen	

1.3. Wiring port



The wiring port description is as follows:

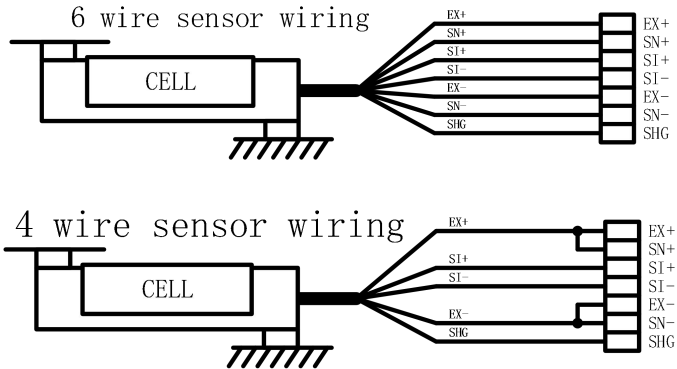
AMC401-6K_Multi-channel Small Package Controller

class	joggle	explain
DC	24V	DC24V Positive power supply
	24G	The DC24V power supply is negative
sensor 1	EX1+	Sensor excitation negative
	EX1-	Sensor signal positive
	SI1+	Sensor signal positive
	SI1-	Sensor signal negative
sensor 2 ~6	Reference Sensor 1 Interface Description.	
AO 1	Analog output is used to control two vibrating feeders for feeding.	
	GND	Common negative for analog output GND
	U1-1	U1-1 Positive terminal of the output
	U1-2	U1-2 Positive terminal of the output
AO 2~6	Reference analog quantity 1 Interface Description	
Comm 1 (RS485)	A1+	RS485 A+
	B1-	RS485 B-
Comm 2 (RS485)	A2+	RS485 A+
	B2-	RS485 B-
Output	OUT1	Q1. Running
	OUT2	Q8. clamp
	OUT3	Q1_10.1#Disc.On
	OUT4	Q2_10.2#Disc.On
	OUT5	Q3_10.3#Disc.On
	OUT6	Q4_10.4#Disc.On
	OUT7	Q5_10.5#Disc.On
	OUT8	Q6_10.6#Disc.On
	OUT9	Q1_17.1#Disc.Direction
	OUT10	Q2_17.2#Disc.Direction
	OUT11	Q3_17.3#Disc.Direction
	OUT12	Q4_17.4#Disc.Direction
	OUT13	Q5_17.5#Disc.Direction
	OUT14	Q6_17.6#Disc.Direction

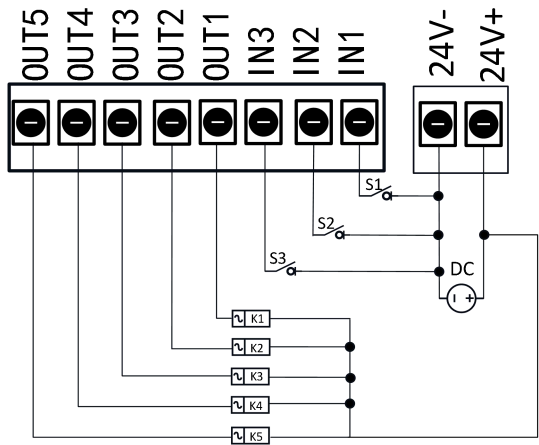
	OUT15	Q1_15.1#Feed Complete	
	OUT16	Q2_15.2#Feed Complete	
	OUT17	Q3_15.3#Feed Complete	
	OUT18	Q4_15.4#Feed Complete	
high-speed pulse output port	The high-speed pulse output port can be configured as "High-Speed Pulse" or "General Output" through parameter settings. For details, refer to Section 2.7.3.		
	H01	High speed pulse	P1.1#Disc Pulse
	H02	High speed pulse	P2.2#Disc Pulse
	H03	High speed pulse	P3.3#Disc Pulse
	H04	High speed pulse	P4.4#Disc Pulse
	H05	High speed pulse	P5.5#Disc Pulse
	H06	High speed pulse	P6.6#Disc Pulse
	H07	Normal	Q5_15.5#Feed complete
	H08	Normal	Q6_15.6#Feed complete
H09	High speed pulse	P0. NONE	
Input	IN1	I1. Running	
	IN2	I2. Stop	
	IN3	I14. Clamp/Disc. En	
	IN4	I1_10.1#Disc. Close OK	
	IN5	I2_10.2#Disc. Close OK	
	IN6	I3_10.3#Disc. Close OK	
	IN7	I4_10.4#Disc. Close OK	
	IN8	I5_10.5#Disc. Close OK	
	IN9	I6_10.6#Disc. Close OK	
input/output multiplexing port	The input/output multiplexed port can be configured via parameter settings as a digital "input" or "output" function. For details, please refer to Section 2.7.4.		
	M1	Input	I1_9.1#Manual Disc.
	M2	Input	I2_9.2#Manual Disc.
	M3	Input	I3_9.3#Manual Disc.
	M4	Input	I4_9.4#Manual Disc.

	M5	Input	I5_9.5#Manual Disc.
	M6	Input	I6_9.6#Manual Disc.

1.3.1. Loadcell wiring method



1.3.2. IO 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.

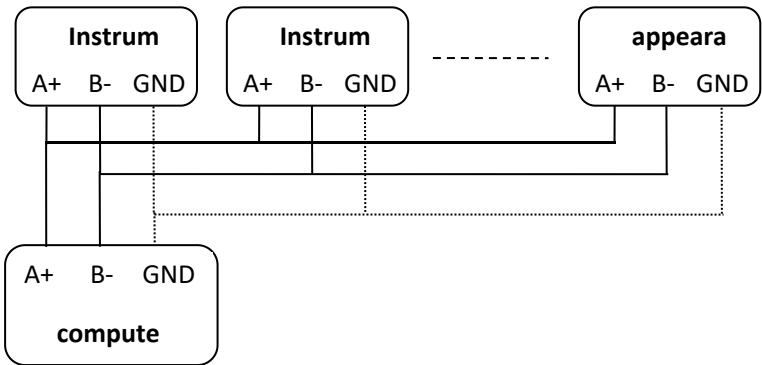
The external circuit driven by the output switching quantity should meet the following two main points:

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

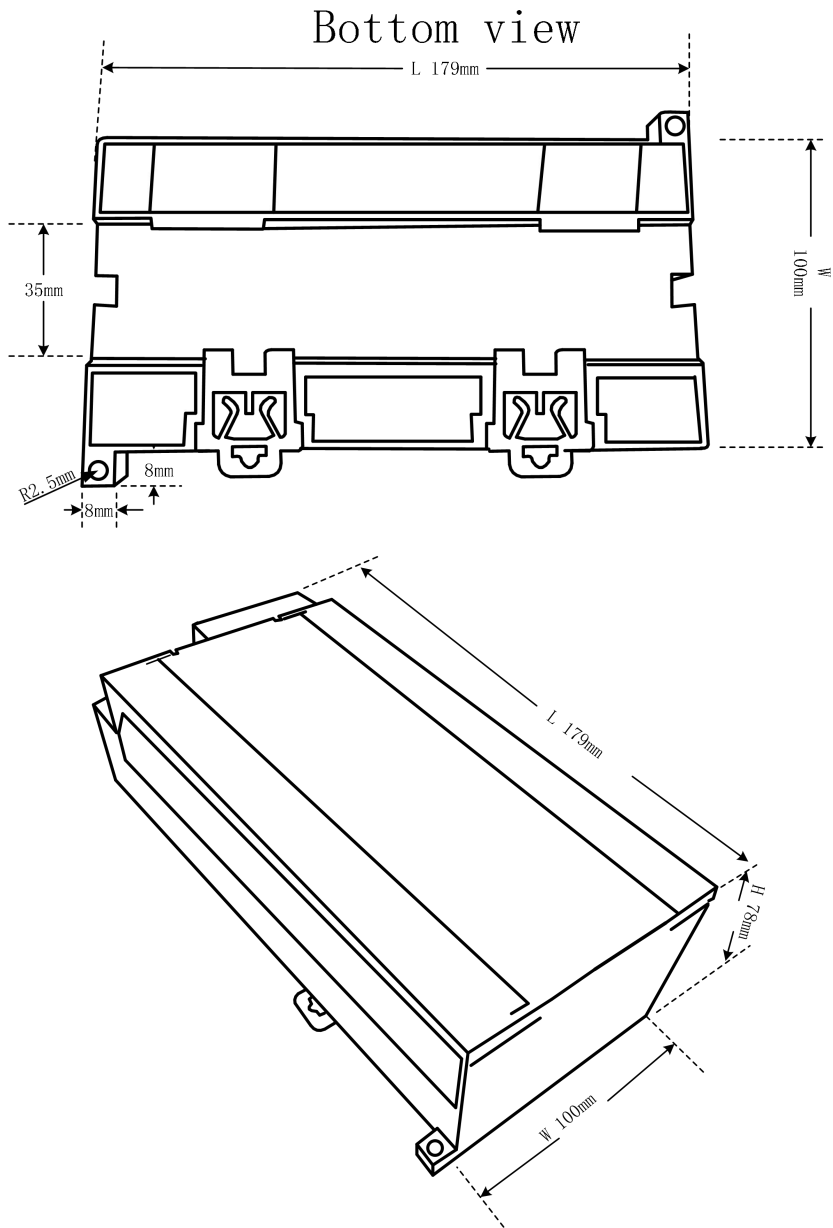
Note: The maximum driving capacity of each switching output port is 500 mA. Please pay attention to the power of the load when connecting the load. Over the driving capacity of the output port may cause damage to the switching output port.

1.3.3. Comm wiring method

RS 485 Wiring signal:



1.1.installation size



II. Function Menu

Under the standby interface, pressing  the keys can lead you to the function menu selection interface, where you can set and view the various function configurations of the controller. The function menu is shown in the following table

number	Project	Explanation
1	Calibration	Operations related to weight calibration.
2	weighing para	Basic parameters for weight collection and processing.
3	Ctrl para	Parameters related to functional process control.
4	Step motor Set	Functional parameters related to stepper motor control.
5	Recipe setting	20 sets of product formula parameters.
6	AI packaging	AI machine learning intelligent packaging function Settings.
7	IO	Definition of switch functions and port testing.
8	Analog	Analog output range and calibration.
9	Acc data	Cumulative data and preset batch viewing and setting.
10	Comm setting	Parameter Settings related to the communication serial port.
11	Password	Set the entry password for each project.
12	Logic	Parameters related to logic programming.
13	System	Parameter reset and system language Settings, etc.
14	SelfTest	Test whether the operation of each mechanical structure of the equipment is normal.

Each project has a password function, allowing you to set whether to open the entry password for that project.

All passwords are factory-default "000000".

2.1. Weight calibration

For the relevant operations of weight calibration in this project, if it is the first time to install and use this product or there are any changes to the scale structure, such as replacing the sensor or weighing platform, a weight calibration operation should be carried out to ensure the accuracy of the weight display.

number	Parameter	Explanation	Init value
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.	④0.000
1.3	Min-Div	①1d = 1/②1d = 2/③1d = 5/④1d = 10/⑤1d = 20/⑥1d = 50 Select the minimum separation value displayed by the system weight.	①1d =0.001
1.4	Max range	Set the maximum weighing range. If the weight exceeds the set maximum range, the weight overflows "OFL"	100.000
1.5	1#Calib		
1.5.1	Loadcell Vol	Displays the voltage signal size of the current sensor input. Abs: The absolute voltage magnitude of the current sensor signal. Gain: The voltage magnitude of the current sensor signal relative to the calibrated zero point.	
1.5.2	Zero clb	Clear the scale platform ,  Empty the scale table zero according to confirmation.。  Manual input of no-load voltage for calibration is allowed.。	
1.5.3	Gain clb	Place objects with known weight on the weighing	

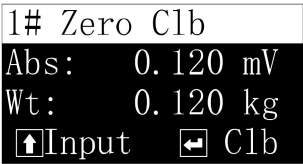
		platform for gain calibration.  Enter the exact weight of the put object after confirmation.  Manually input gain voltage and corresponding weight for calibration.	
1.6	2#Calib	Reference 1# Calibration Instructions	
1.7	3#Calib		
1.8	4#Calib		
1.9	5#Calib		
1.10	6#Calib		

2.1.1.Weight calibration process

The following takes the calibration of No. 1 as an example to illustrate the process of weight calibration.

- 1. Set the parameters such as the weight decimal point, unit, minimum division, and maximum range used by the system properly.
- 2. Calibration of empty scale.

Enter the [1.5.2 Empty Scale Calibration] interface as shown in the following figure:



The main display shows the absolute voltage magnitude of the current sensor and the current weight value.

At this point, empty the scale platform to keep the sensor voltage value

stable. After  pressing the confirmation key, the controller starts to collect signals for empty scale calibration. After calibration is completed, the current weight is displayed as 0, as shown in the following figure

1# Zero Clb
Abs: 0.120 mV
Wt: 0.000 kg
Zero Clb OK

3. Calibration of weights.

Enter the [1.5.3 Weight Calibration] interface as shown in the following figure:

1# Gain Clb
Gain: 0.000 mV
Wt: 0.000 kg
⬆️Input ⬅️Clb

The main display shows the voltage magnitude of the current sensor relative to the empty scale and the current weight value.

At this point, place the weights on the scale platform. The relative voltage value of the sensor will increase. Wait for the displayed voltage value to

stabilize, then  press the confirmation key. The weight input will be displayed on the bottom line

1# Gain Clb
Gain: 1.203 mV
Wt: 1.203 kg
010.000 kg

After inputting the weight of the weights,  press the confirmation key to complete the calibration of the weights. The voltage relative to the zero point and the input weight will be automatically calibrated.

2.1.2.Quickly calibrate the empty scale

In the stop state, press  the button to switch to the single-channel display interface where the empty scale calibration is required. Hold down the  controller key for about 2 seconds. After hearing a long beep from the buzzer, release it. This

can quickly calibrate the current state to zero.

Note: The weight needs to be stable when quickly calibrating the empty scale.

2.1.3.Calibration Precautions

1. When calibrating an empty scale and weights, the normal sensor voltage range is greater than 0mV and less than 10mV (15mV for a sensor with a sensitivity of 3). If the sensor voltage shows 0mV or exceeds 10mV, it indicates that the current sensor signal is abnormal. It is necessary to check whether the sensor's circuit connection and installation are normal and whether the sensor is damaged.
2. When calibrating the empty scale and weights, the calibration operation can only be carried out if the displayed sensor voltage is stable and does not fluctuate. If abnormal and continuous fluctuations of the sensor voltage are found, it is necessary to check whether the sensor circuit connection and installation are normal and whether the sensor is damaged.
3. The calibration of empty scales and weights supports manual input of sensor voltage values for calibration. Just press the keys according to the

prompts on  the calibration interface.

2.2. Basic weighing parameters

Set the parameters for the functions related to weight signal acquisition and processing in this project.

2.2.1.Zero function

Function Settings related to weight reset.

number	Parameter	Explanation	Init value
2.1	Zero function		
2.1.1	Zero range	0.0% to 100.0% When performing the zeroing operation, the weight must be less than or equal to " 【1.4 Maximum Range 】× 【2.1.1 Zeroing Range 】	20.0%

		" to allow zeroing.	
2.1.2	Zero range startup	0.0% to 100.0% When the controller is powered on and detects that the current weight is less than or equal to "【1.4 Maximum Range 】×【2.1.2 Zero range startup 】", it will automatically perform a zeroing once. Note: When set to 0.0%, the automatic reset function upon power-on will be turned off.	0.0%
2.1.3	Zero Save	①off: After the weight is reset to zero, power off and restart will restore the weight value before it was reset to zero. ②On: After the weight is reset to zero, if the power is cut off and the device is restarted, the weight still shows 0.	① off

2.2.2.Stable & Tracking

The condition Settings for determining whether the weight is stable and the parameter Settings for the zeroing-tracking function.

number	Parameter	Explanation		Init value
2.2	Stable & Tracking			
2.2.1	Stable range	0~99d	d represents the minimum graduation value. These two parameters work together to determine whether the weight is stable.	2d
2.2.2	Stable time	0.1 ~ 9.9 s	Take all the weight values within the "stabilization time". If the difference between the maximum and minimum values is less than or equal to the "stabilization range", it is considered that the weight value is stable at this time. Note: When the stability range is	0.8 s

			set to 0, the controller will consider the weight to remain stable all the time.	
2.2.3	Zero tracking range	0~99d	d represents the minimum graduation value. When the weight value is within 0± [zeroing range], and the weight remains stable and continuously exceeds the set [zeroing time], the weight reset will be automatically executed.	1d
2.2.4	Zero tracking time	0.1 ~ 9.9 s	Note: The zeroing function is turned off when the zeroing range is set to 0.	2.0 s
2.2.5	Zero tracking work time	① Only stop: The zeroing-chasing function only works in the stop state. ② Run and stop: The zeroing-chasing function works both when the controller is in running and stopped states.		① Only stop

2.2.3.Digital filtering

Set the software digital filtering levels for each state.

number	Parameter	Explanation	Init value
2.3	Weighting filter		
2.3.1	Weighting filter Stop	0~9; The intensity level of software digital filtering should be set according to the actual debugging effect of the equipment, with appropriate filtering level parameter values. 0: Weakest filtering, fast weight response, and poor anti-vibration effect; 9: Strongest filtering, slow weight response, and excellent anti-vibration effect.	7
2.3.2	Weighting filter Feed		5
2.3.3	Weighting filter Hold		5
2.3.4	Weighting filter Disc.		3

2.3. Process control parameters

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

2.3.1. Pattern-related

Set the operation mode of the controller and other functions.

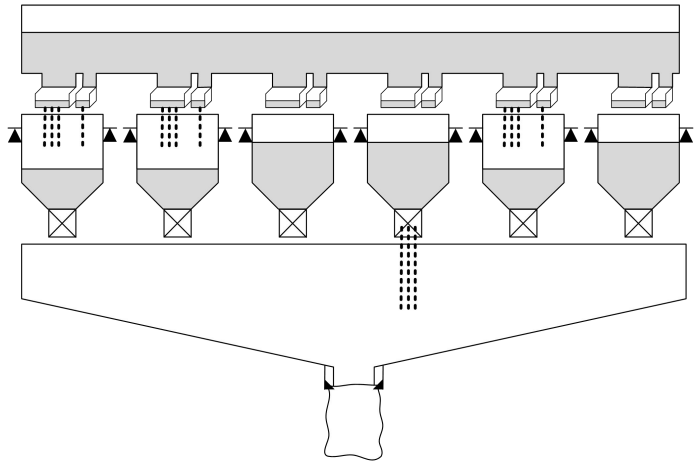
number	Parameter	Explanation	Init value
3.1	Work Mode		
3.1.1	Work mode	① Lock mode: Each channel's Disc is interlocked, and only one channel is unloaded at a time. ② single mode: Each channel operates independently without interfering with each other. ③ Group mode: All channels are divided into two groups. The Disc of each channel in each group is interlocked, and only one channel in each group is unloaded at a time. For a detailed description of the working mode, please refer to the 2.3.1.1 section.	① Lock mode
3.1.2	Inter Disc. interval time	0~60000ms; 【 3.1.1 Working Mode 】 It works when set to "① Lock mode". The minimum interval time from the completion of Disc of the previous package to the start of Disc of the next package. When the "3.4.2 Disc. Start Condition" is set to "③ clamp Bag" and the "5.3.9 scale comb Times" is set to be greater than 1, it is used as the minimum interval time between two Disc operations.	500ms
3.1.3	Auto zero interval	0~999; After each packaging process, perform a zeroing before the feeding begins. Note: When set to 0, the automatic zeroing function is turned off.	0

3.1.4	Zero Additional Delay	0~60,000ms; The automatic zeroing interval function has been enabled. When zeroing is required before this feeding, after the [3.2.4 Delay before feed] time expires, an additional delay for zeroing will be initiated. Once this delay time is up, a stable zeroing will be performed. This function is designed to increase the waiting time before zeroing, facilitating the stability of weight during the zeroing process.	500ms
3.1.5	Zero First Threshold	0.0% to 100.0% Before the first feeding after startup, if the current weight is $\leq$ [target value] $\times$ [first startup zeroing threshold], then zeroing should be done before starting to add materials. Note: When set to 0.0%, it will not be reset to zero at the first startup.	0.0%
3.1.6	Single-run mode	① OFF ② ON After this function is enabled, each channel will automatically switch to a stop state after running once upon startup.	① OFF
3.1.7	Tare Deduction	① OFF ② ON After this function is enabled, the current weight will be used as the tare weight to remove the tare before adding materials each time. After Disc is completed, the tare weight will be cleared.	① OFF

2.3.1.1. Detailed description of the working mode

(1) Lock mode

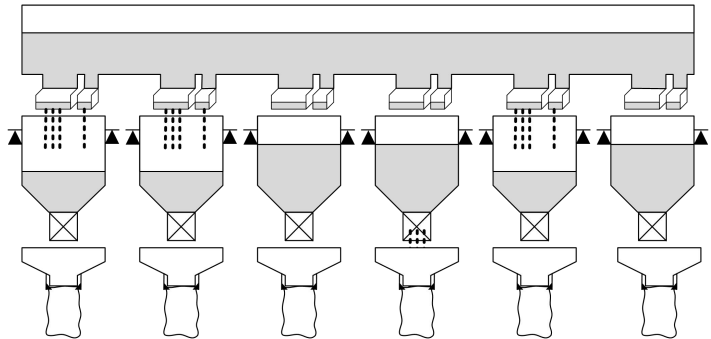
Structural schematic diagram



【3.4.2 Disc. Start Conditions】 When set to "① Disc. Enable or "③ clamp bag", the switch input uses the total function "I14 clamp/Disc. En" signal.

(2) Independent mode

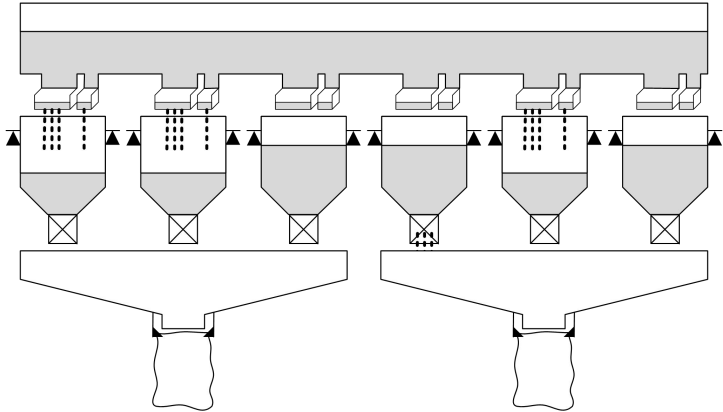
Structural schematic diagram



【3.4.2 Disc. Start Conditions】 When set to "① Disc. Enable or "③ clamp bag", the switch input uses the "I(1~6)14 clamp/Disc. En" signal of each channel's sub-function.

(3) Grouping mode

Structural schematic diagram



【3.4.2 Disc. Start Conditions】 When set to "① Disc. Enable or "③ clamp bag ", the switch quantity input uses "I[1]_9" in the group function. Group [1] with Clamp/Disc. En "and" I[2]_9. Group [2]with Clamp/Disc. En ".

In the grouping mode, the default grouping situation of the controller is as follows:

Channel 6: Group [1] : 1#, 2#, 3#. Group [2] : 4#, 5#, 6#.

Since the AMC401-6K multi-channel small packaging controller can be equipped with different channel numbers when leaving the factory, the grouping situation when other channel numbers are selected is as follows:

Channel 5: Group [1] : 1#, 2#, 3#. Group [2] : 4#, 5#.

Channel 4: Group [1] : 1#, 2#. Group [2] : 3#, 4#.

Channel 3: Group [1] : 1#, 2#. Group [2] : 3#

Channel 2: Group [1] : 1#. Group [2] : 2#

Channel 1: Group [1] : 1#. Group [2] : None.

2.3.2.Feeding process

Set the relevant functional parameters for the feeding process.

number	Parameter	Explanation	Init value
3.2	Feeding process		
3.2.1	Feed signal set	① IO & analog; When adding materials, simultaneously output switch signals for fast, med and slow dosages as well as analog signals. ② only IO; When adding materials, only output the switch signals for fast, med and slow dosages.	① IO & analog

3.2.2	IO feed mode	① Combination Quick feeding: Effective for fast, med and slow feeders Med feeding: Effective for med and slow dosages Slow feeding: A slow amount is effective ② Independence fast feeding: Fast input is effective Med feeding: Mid-range feeding is effective Slow feeding: A slow amount is effective	① Combination
3.2.3	Acc, moment	① After Disc, ② After hold	① After Disc
3.2.4	Delay before feed	0~60,000ms; The delay time before the feeding starts after the operation is initiated.	500ms

2.3.3.Fixed value process

Set the relevant functions during the value setting process after the feeding is completed.

number	Parameter	Explanation	Init value
3.3	Hold Process		
3.3.1	Hold mode	① Time mode: After the feeding is completed, start the [5.5.7 result hold Time]. Once the time ends, the setting is finished and the feeding result is recorded. ② Stable mode: After the feeding is completed, wait for the current weight to stabilize, then set the value and record the feeding result. ③ Time & stable: After the feeding is completed, start the [5.5.7 result hold	① Time mode

		time]. When the time ends and wait for the current weight to stabilize, the setting is completed and the feeding result is recorded. ④ Fast mode: After startup, the first 6 scales will learn by judging stable values. Later, a time value setting method will be adopted. Based on the learning situation of the previous scales, calculations will be made to predict the result of this feeding. In this mode, the "5.5.7 result hold time" can be set very short (it is recommended to be 200 to 500ms), achieving the goal of quickly setting the value and obtaining relatively accurate feeding results.	
3.3.2	Stop after Hold	① OFF ② ON: Returns to the stop state after the setting is completed.	① OFF
3.3.3	Result hold	① OFF ② On: After the setting is completed, the controller will continuously display the feeding result recorded in the setting until the Disc is finished, at which point the real-time weight will be shown.	① OFF
3.3.4	Over/under Func	① OFF: No Over/under detection is conducted. ② ON: After each feeding is completed, the feeding results will be checked for excess or deficiency. Over or under is a collective term for over/under Func. During the packaging process, if the packaging result is higher than the target value by a certain range, it is considered over-tolerance, while if	① OFF

		it is lower than a certain range, it is considered under-tolerance. This range is set according to production requirements.	
3.3.5	Over/under alarm time	0~60,000ms; The alarm time when an over-limit or under-limit error occurs.	1000ms
3.3.6	Over/under Pause	① OFF / ② ON When both the "Over-limit and Under-limit Detection" switch and the "Over-limit and Under-limit Pause" switch are turned on, if an over-limit or under-limit occurs, the controller will alarm and wait for the user to handle it. At this time, the "I5 Clear Alarm" input will resume operation, or the "I2 Stop" signal can be given to return to the stop state for processing.	① OFF
3.3.7	Under replenish	① OFF ② ON: When a deficiency occurs, the replenishment process will be initiated.	① OFF
3.3.8	Replenish Min time	0~60,000ms; The minimum time for slow input output when replenishing materials.	500ms
3.3.9	Replenish Max time	0~60,000ms; The maximum time for slow input output when replenishing materials. If the material replenishment is not completed after this time, the current material replenishment process will be forcibly stopped.	5000ms

2.3.4.Disc process

Settings of relevant functions such as Disc control mode.

number	Parameter	Explanation	Init value
3.4	Disc. process		
3.4.1	Disc. control	① Air (No place) ② Air (with place)	① Air (No place)

	mode	③ motor one Dir ④ motor two Dir ⑤ Step motor one Dir ⑥ Step motor two Dir ⑦ Step motor one Dir(No place) ⑧ Step motor two Dir(No place) For detailed introductions to the functions of each Disc mode, please refer 2.3.4.1 to the chapters.	
3.4.2	Disc. start condition	① Disc Enable: After the feeding is completed, wait for the external input signal "I14. Loosen the bag/Disc" to be valid before starting the Disc. ② NONE: Disc can start directly after the feeding is completed. ③ clamp bag: After the feeding is completed, wait for the bag clamping to be finished before starting the Disc.	③ clamp bag
3.4.3	Disc. End condition	① Time: After the Disc begins, the Disc is considered complete and ends after the [5.5.8 Disc holding time]. ② Zero Area: After the Disc begins, if the weight is lower than the [3.4.4 Disc Zero Zone Value], and after the [5.5.8 Disc holding time], it is considered that the Disc is completed and the Disc is ended.	① Zero Area
3.4.4	Disc. Zero Area	When the current weight is within the range of "0± [Disc zero zone value]", it is considered to be in the zero zone. 【3.4.3 Disc. End condition】 It takes effect when set to "② Zero Area". 【3.4.5 Rerun condition】 It takes effect when set to "② Zero Area".	0.050 kg
3.4.5	Rerun condition	① NONE : After the Disc is completed, when the [3.4.6 Restart delay] time is up, the next feeding	② Zero Area

		process can be directly initiated. ②Zero Area: After the Disc is completed, [3.4.6 Rerun delay] when the time is up, it is necessary to wait for the weight to fall within the range of "0± [3.4.4 Disc. Zero Area]" before starting the next feeding process.	
3.4.6	Rerun delay	0~60,000ms; The delay time from the completion of Disc to the start of the next feeding process.	500ms
3.4.7	Disc. open time	0~60,000ms; 【3.4.1 Disc. control mode】 It takes effect when set to "③ motor one Dir " or "④ motor two Dir ". Set the time it takes for the motor discharge door to open to the maximum.	500ms
3.4.8	Disc. close timeout	0~60,000ms; If the "Disc Close OK" signal input is still not detected to be valid after this period of time when the Disc door is closed, it is considered that the Disc door has exceeded the closing time limit and an alarm prompt will be issued.	5000ms
3.4.9	Wait Disc. Close OK	① OFF ②ON: After the Disc is completed, it is necessary to wait for the signal of the Disc door closing in place to be valid before starting [3.4.6 Rerun delay], and then proceed to the next cycle process. For details, please refer to 2.3.4.1 the chapters.	② ON
3.4.10	Manual Disc. mode	① Auto close: After manual Disc starts and the Disc is completed, the Disc door will automatically close. ② Manual close: After manual Disc starts, the Disc door needs to be manually closed after Disc is completed.	① Auto close
3.4.11	Manual Disc. Acc Threshold	0.0% ~100.0% If the weight of manual Disc $\geq$ [target value] $\times$ [Manual Disc. Acc Threshold], the weight of manual Disc will be included in the cumulative value. Note: When set to 0.0%, the weight of manual	0.0%

		Disc is not included in the cumulative value.	
--	--	---	--

2.3.4.1. Detailed description of the Disc mode

The following takes Channel 1 as an example to elaborate on the signal timing under different Disc modes.

1. Air (No place)/ Air (with place)

The pneumatic device controls the action of the Disc mechanism. The signal timing sequences of the two modes are the same. The difference is that when the Disc door of the " Air (with place)" mode is closed, there is a detection signal for the door closing position.

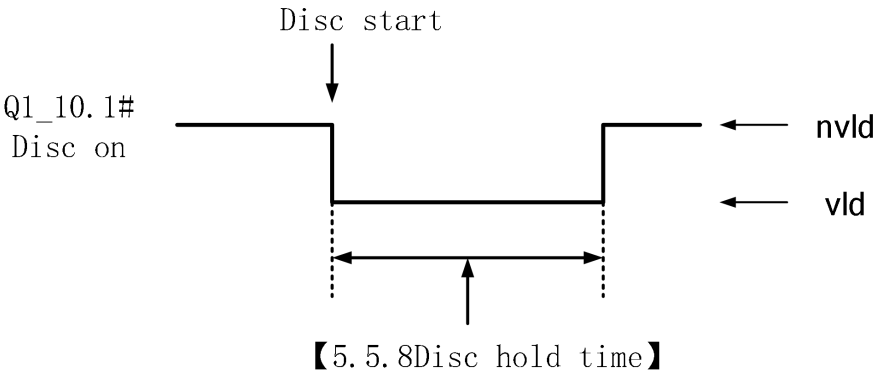
RelatedIO:"Q1_10.1#Disc On", "I1_10.1# Disc close OK".

Relevant parameters: [3.4.4Disc zero Area], [3.4.3 Disc end condition], [5.5.8Disc. hold Time].

When the [3.4.3 Disc end condition] is set to "① Time", the Disc. process is as follows:

At the beginning of Disc, the "Q1_10.1# Disc on" signal is output to control the opening of the Disc door. After a period of [5.5.8 Disc hold time], it is considered that the Disc is completed. Then, the "Q1_10.1# Disc on " signal is closed and the Disc door is closed.

The signal timing diagram is as follows:

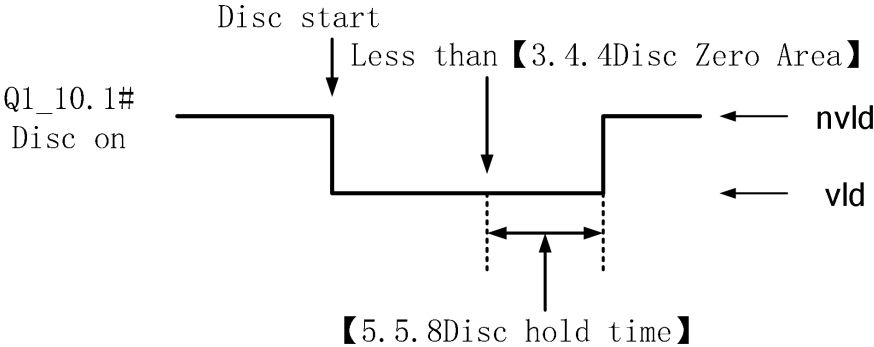


When the [3.4.3 Disc End Condition] is set to "② Zero Area", the Disc process is as follows:

At the beginning of Disc, the "Q1_10.1# Disc On" signal is output

to control the opening of the Disc door. When the weight value is lower than the [3.4.4Disc Zero Area], after the [5.5.8 Disc hold time] period, it is considered that the Disc is completed, and the "Q1_10.1# Disc On" signal is closed to close the Disc door.

The signal timing diagram is as follows:



2. Motor One Dir

The common motor rotates one full circle to control the Disc mechanism to achieve the opening and closing of the Disc door.

RelatedIO: "Q1_10.1# Disc on", "I1_10.1# Disc close OK".

Relevant parameters: [3.4.7Disc open Time], [3.4.8 Disc Close Timeout],[3.4.4Disc Zero Area], [3.4.3Disc End Condition],[5.5.8Disc hold Time].

When the [3.4.3 Disc end Condition] is set to "① Time", the Disc process is as follows:

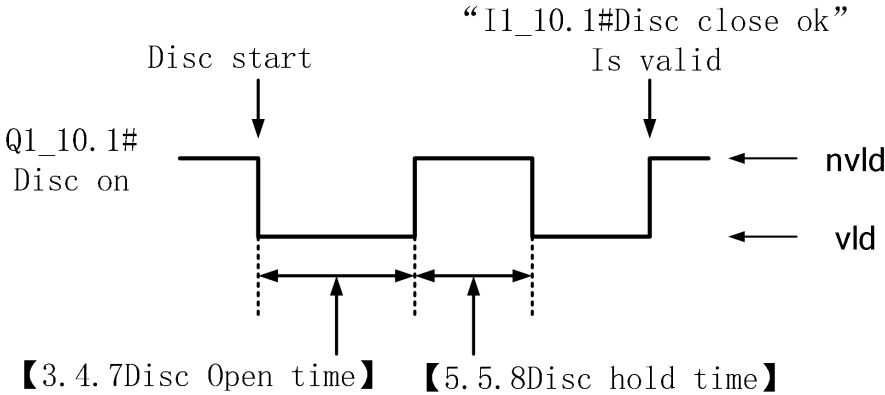
At the beginning of Disc, the "Q1_10.1# Disc On" signal output is valid. After the [3.4.7 Disc open time], it is considered that the Disc door has been opened. At this time, the "Q1_10.1# Disc On" signal output is invalid. After the [5.5.8 Disc hold time] time is up, it is considered that the Disc is completed. Continue the "Q1_10.1# Disc On" signal output to effectively control the closing of the Disc door. Once the input signal "I1_10.1# Disc Close OK" is detected to be effective, it is considered that the Disc door has been closed OK, and the "Q1_10.1# Disc On" signal output becomes invalid, marking the end of the Disc process.

During the closing process of the discharge door, if the signal input of "I1_10.1# Disc Close OK" is still not detected to be valid after exceeding

the [3.4.8 Disc Close Timeout] time, it is considered that the discharge door has exceeded the closing time and an alarm prompt will be issued.

Note: When the [5.5.8 Disch hold Time] is set to 0, the discharge motor can continuously rotate until the discharge door is closed without any pause in between.

The signal timing diagram is as follows:

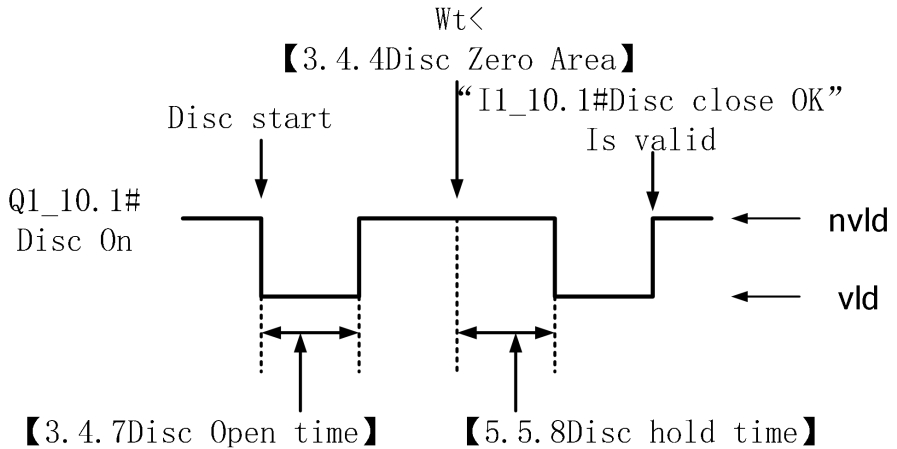


When the [3.4.3 Disc End Condition] is set to "② Zero Area", the Disc process is as follows:

At the beginning of Disc, the "Q34.1# Disc On" signal output is valid. After the [3.4.7 Disc open time], it is considered that the Disc door has been opened. At this time, the "Q1_10.1# Disc On" signal output is invalid. When the weight value is lower than the [3.4.4 Disc Zero Area], and after the [5.5.8 Disc hold time], it is considered that the Disc is completed. Continue the "Q1_10.1# Disc On" signal output to effectively control the closing of the Disc door. Once the input signal "I1_10.1# Disc Close OK " is detected to be effective, it is considered that the Disc door has been closed in place, and the "Q1_10.1# Disc On" signal output becomes invalid, marking the end of the Disc process.

During the closing process of the disc door, if the signal input of "I1_10.1# Disc Close OK" is still not detected as valid after exceeding the [3.4.8 Disc. close timeout] time, it is considered that the discharge door has exceeded the closing time and an alarm prompt will be given.

The signal timing diagram is as follows:



3. Motor two Dir

The forward and reverse rotation control of the discharge mechanism of the common motor realizes the opening and closing of the discharge door.

Related I/O: "Q1_10.1# Disc on", "Q1_11.1# Disc Off", "I1_10.1# Disc Close OK".

Relevant parameters: [3.4.7 Disc open time], [3.4.8 Disc. close timeout], [3.4.4 Disc Zero Area], [3.4.3 Disc End Condition], [5.5.8 Disc hold Time].

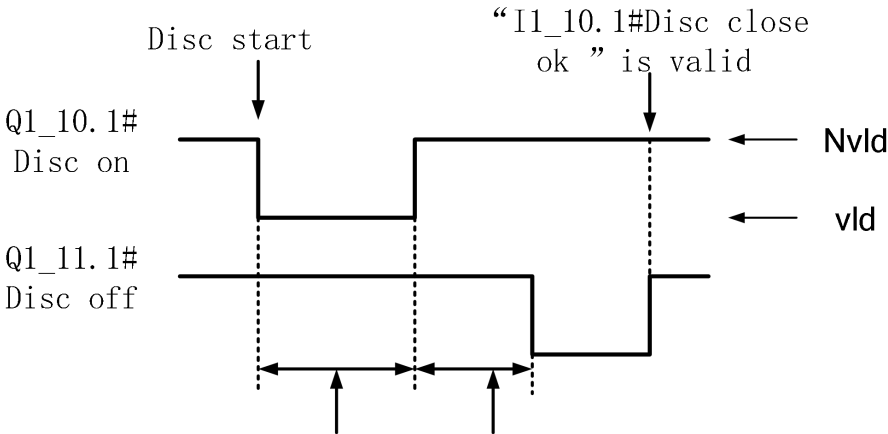
When the [3.4.3 Disc end Condition] is set to "① Time ", the Disc process is as follows:

At the beginning of Disc, the "Q1_10.1# Disc On" signal output is valid. After the [3.4.7 Disc open time], it is considered that the Disc door has been opened. At this time, the "Q1_10.1# Disc On" signal output is invalid. After the [5.5.8 Disc holding time] time is up, it is considered that the Disc is completed. The signal output of "Q1_11.1# Disc off " effectively controls the closing of the Disc door. Once the input signal "I1_10.1 # Disc close OK" is detected to be effective, it is considered that the Disc door has been fully closed. The signal output of "Q1_11.1# Disc off" becomes invalid, and the Disc process ends.

During the closing process of the discharge door, if the signal input of "I1_10.1# Disc Close OK " is still not detected as valid after exceeding the [3.4.8 Disc. close timeout] time, it is considered that the discharge door has

exceeded the closing time and an alarm prompt will be given.

The signal timing diagram is as follows:



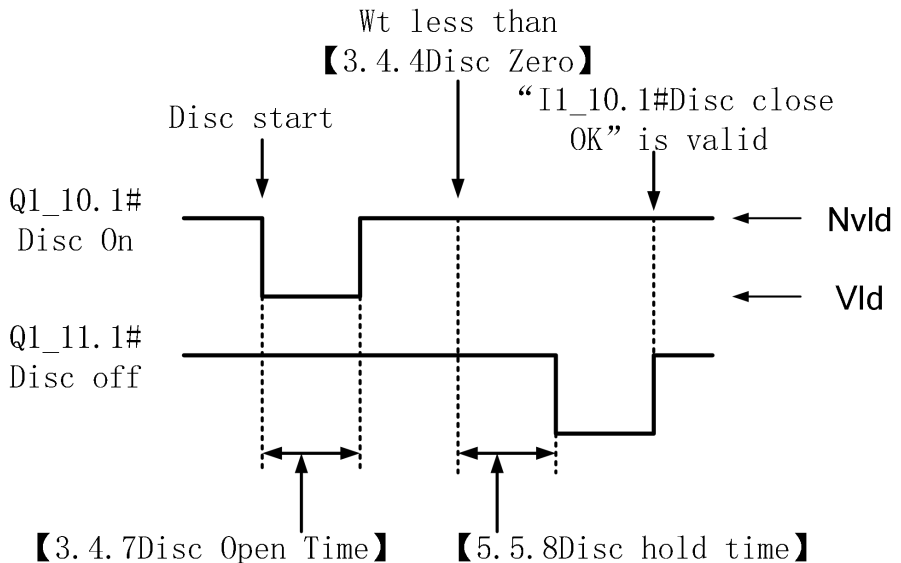
【3.4.7Disc open time】 【5.5.8Disc hold time】

When the [3.4.3 Disc End Condition] is set to "② Zero Area", the Disc process is as follows:

At the beginning of Disc, the "Q1_10.1# Disc On" signal output is valid. After the [3.4.7 Disc open time], it is considered that the Disc door has been opened. At this time, the "Q1_10.1# Disc On" signal output is invalid. When the weight value is lower than the [3.4.4 Disc Zero Area], and after the [5.5.8 Disc hold time], it is considered that the Disc is completed. The signal output of "Q1_11.1# Disc off" effectively controls the closing of the Disc door. Once the input signal "I1_11.1 # Disc off "is detected to be effective, it is considered that the Disc door has been fully closed. The signal output of "Q1_11.1# Disc off" becomes invalid, and the Disc process ends.

During the closing process of the disc door, if the signal input of "I1_10.1# Disc Close OK " is still not detected as valid after exceeding the [3.4.8 Disc. close timeout] time, it is considered that the discharge door has exceeded the closing time and an alarm prompt will be given.

The signal timing diagram is as follows:



4. Step motor one Dir

The stepping motor rotates one full circle to control the Disc mechanism to achieve the opening and closing of the Disc door.

The operation of the stepper motor is controlled by pulse signals.

RelatedIO:"P1.1#Disc Pulse", "I1_10.1# Disc Close OK ".

Relevant parameters: [3.4.8 Disc. close timeout], [3.4.4 Disc Zero Area], [3.4.3 Disc End Condition], [5.5.8 Disc Holding Time], [4.2.1# Disc motor].

Note: The functions of relevant parameters such as the "Run frequ", "start frequ", and "deceleration frequ" of the Disc stepping motor are detailed in the section.2.4Here, it is assumed that the relevant parameters have been set.

When the [3.4.3 Disc end Condition] is set to "① Time", the Disc process is as follows:

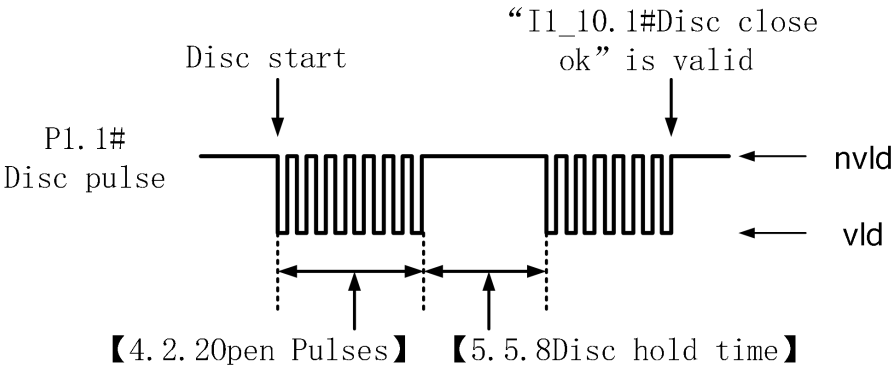
At the beginning of Disc, the "P1.1# Disc pulse" signal starts to output pulses to control the opening of the Disc door. When the number of output pulses reaches the set [4.2.2 Open Pulse], the output pulse signal stops, indicating that the Disc door has opened. After waiting for the [5.5.8 Disc hold time], it is considered that the Disc is completed.

The "P1.1# Disc Pulse" outputs the pulse again to control the closing of the discharge door. Once the input signal "I1_10.1# Disc Close OK" is detected to be valid, it is considered that the discharge door has been closed in place. Then, the "P1.1# Disc Pulse" stops outputting the pulse signal, and the discharge process is completed.

During the closing process of the discharge door, if the signal input of "I1_10.1# Disc Close OK" is still not detected to be valid after exceeding the [3.4.8 Disc. close timeout] time, it is considered that the discharge door has exceeded the closing time and an alarm prompt will be issued.

Note: When the [5.5.8 Disc hold Time] is set to 0, the discharge stepping motor can continuously rotate until the discharge door is closed without any pause in between.

The signal timing diagram is as follows:



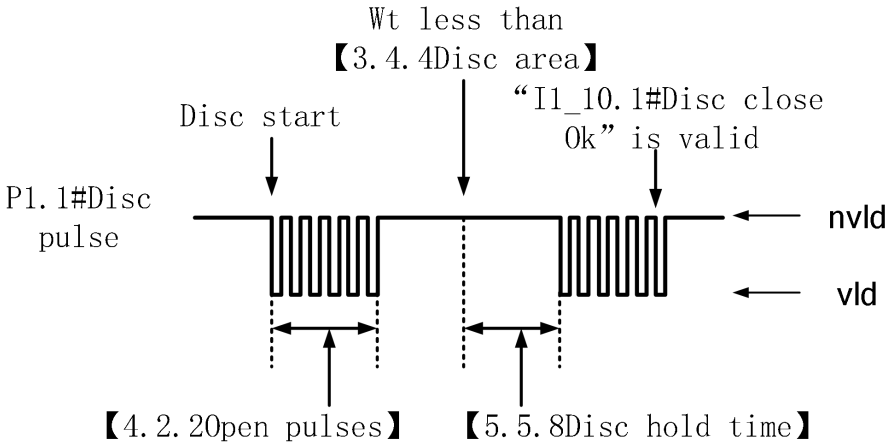
When the [3.4.3 Disc End Condition] is set to "② Zero Area", the Disc process is as follows:

At the beginning of Disc, the "P1.1# Disc pulse" signal starts to output pulses to control the opening of the Disc door. When the number of output pulses reaches the set [4.2.2 Door Open Pulse], the output pulse signal stops, indicating that the Disc door has opened. When the weight value is lower than the [3.4.4 Disc Zero Area], After an other period of [5.5.8 Disc hold time], it is considered that the Disc is completed. The "P1.1# Disc Pulse" outputs the pulse again to control the closing of the Disc door. When the input signal "I1_10.1# Disc Close OK " is detected to be valid, it is considered that the Disc door has been

closed in place. The "P1.1# Disc pulse" stops outputting the pulse signal, and the Disc process is completed.

During the closing process of the discharge door, if the signal input of "I1_10.1# Disc Close OK " is still not detected as valid after exceeding the [3.4.8 Disc. close timeout] time, it is considered that the discharge door has exceeded the closing time and an alarm prompt will be given.

The signal timing diagram is as follows:



5. Step motor two Dir

The forward and reverse rotation of the stepping motor controls the discharge mechanism to achieve the opening and closing of the discharge door.

Related I/O: "P1.1#Disc pulse", "Q1_17.1# Disc Direction", "I1_10.1# Disc Close OK ".

Relevant parameters: [3.4.8 Disc. close timeout], [3.4.4 Disc Zero Area], [3.4.3 Disc end Condition], [5.5.8Disc Hold Time], [4.2.1# Disc motor].

Note: The functions of relevant parameters such as the "run frequ", "start frequ", and "stop frequ" of the Disc stepping motor are detailed in the section.2.4Here, it is assumed that the relevant parameters have been set.

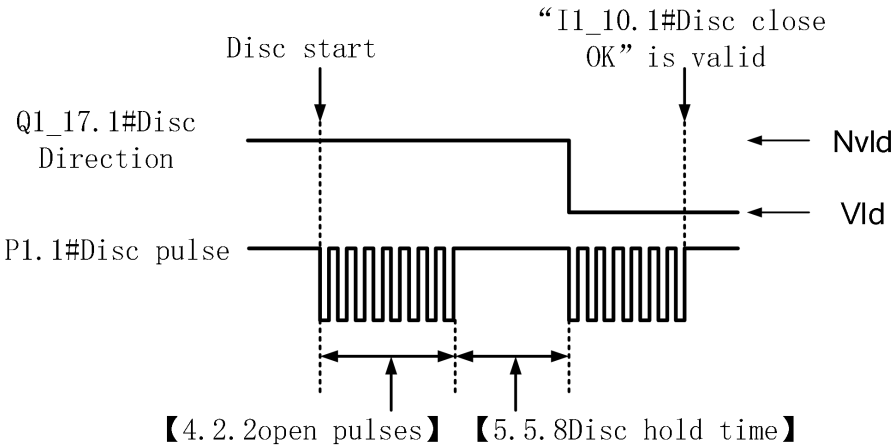
When the [3.4.3 Disc end Condition] is set to "① Time", the Disc process is as follows:

At the beginning of Disc, the output of "Q1_17.1#Disc Direction" is invalid. The rotation direction of the control step motor is set to the door opening

direction. The "P1.1# Disc pulse" signal starts to output pulses to control the opening of the Disc door. After the number of output pulses reaches the set [4.2.2 Open pulses], the output of the pulse signal stops, and it is considered that the Disc door has opened. After the time of [5.5.8 Disc holding Time] is up, it is considered that the Disc is complete. The output of "Q1_17.1# Disc Direction" is valid, and the rotation direction of the stepping motor is controlled to be the closing direction. "P1.1# Disc pulse" outputs the pulse again to control the closing of the Disc door. When the input signal "I1_10.1# Disc Close OK " is detected to be valid, it is considered that the Disc door has been closed in place, and the "P1.1# Disc pulse" stops to output the pulse signal, and the Disc process is completed.

During the closing process of the discharge door, if the signal input of "I1_10.1# Disc Close OK" is still not detected to be valid after exceeding the [3.4.8 Disc. close timeout] time, it is considered that the discharge door has exceeded the closing time and an alarm prompt will be issued.

The signal timing diagram is as follows:



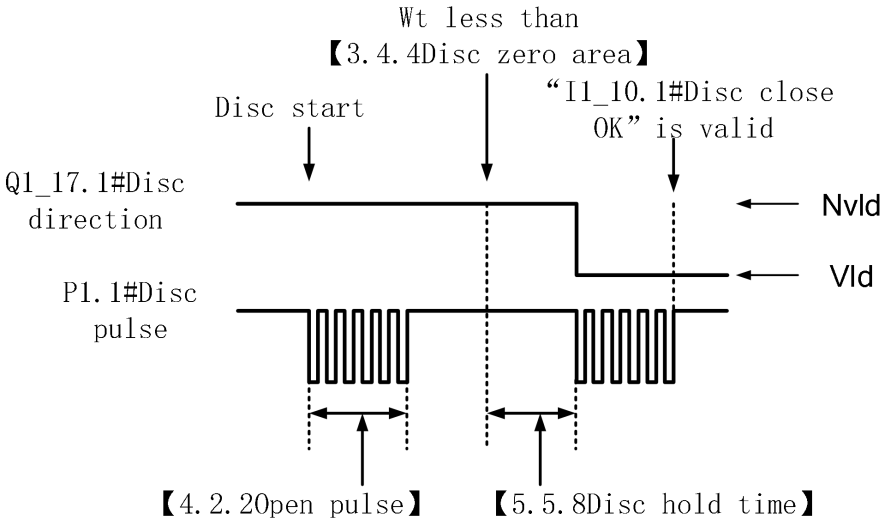
When the [3.4.3 Disc End Condition] is set to "② Zero Area", the Disc process is as follows:

At the beginning of Disc, the output of "Q1_17.1#Disc Direction" is invalid. The rotation direction of the control step motor is set to the door opening direction. The "P1.1# Disc pulse" signal starts to output pulses to

control the opening of the Disc door. After the number of output pulses reaches the set [4.2.20opening pulses], the output of the pulse signal stops, and it is considered that the Disc door has opened. When the weight value is lower than the [3.4.4 Disc Zero Area], after the [5.5.8 Disc hold time] period, it is considered that the Disc is completed. The output of "Q1_17.1# Disc Direction" is effective, controlling the rotation direction of the stepping motor to the closing direction. The "P1.1# Disc pulse" outputs the pulse again to control the closing of the Disc door. When the input signal "I1_10.1# Disc Close OK "is detected to be valid, it is considered that the Disc door has been closed in place, and the "P1.1# Disc pulse" stops to output the pulse signal, and the Disc process is completed.

During the closing process of the discharge door, if the signal input of "I1_10.1# Disc Close OK " is still not detected as valid after exceeding the [3.4.8 Disc. close timeout] time, it is considered that the discharge door has exceeded the closing time and an alarm prompt will be given.

The signal timing diagram is as follows:



6. Step motor One Dir (No place)

Refer to the 4Step motor one Dir function description in the reference chapter. The basic process is the same. The difference is that when the "infinite bit" mode

closes the door and the number of output pulses reaches the [4.2.3 Closing Pulse Number] setting, the output pulse signal stops. At this point, it is considered that the Disc door has been fully closed, and there is no need to detect the closing signal.

7. Step motor Two Dir (No place)

Refer to the [5Step motor two Dir](#) function description in the reference chapter. The basic process is the same. The difference is that when the "infinite bit" mode closes the door and the number of output pulses reaches the [4.2.3 Close Pulses] setting, the output pulse signal stops. At this point, it is considered that the Disc door has been fully closed, and there is no need to detect the closing signal.

2.3.5.Clear the material

Parameter Settings related to the material cleaning function.

When the material cleaning starts, the controller will output an analog quantity to control the vibrating disc to feed materials and open the discharge door to quickly clear the remaining materials in the hopper.

number	Parameter	Explanation	Init value
3.5	Clear the material		
3.5.1	Clr Material U-1	0.000~5.000V; The voltage value output by U-1 during material cleaning.	3.500
3.5.2	Clr Material U-2	0.000~ 5.000V; The voltage value output by U-2 during material cleaning.	3.500
3.5.3	Clr Material close Delay	0~ 9999ms; When the material cleaning is closed, first turn off the analog output signal to stop feeding, and then delay for this time before closing the Disc.	1000ms

2.3.6.Material level setting

Set the functional parameters related to the signal input of the material level gauge and the feeding control.

number	Parameter	Explanation	Init value
3.6	Material level		

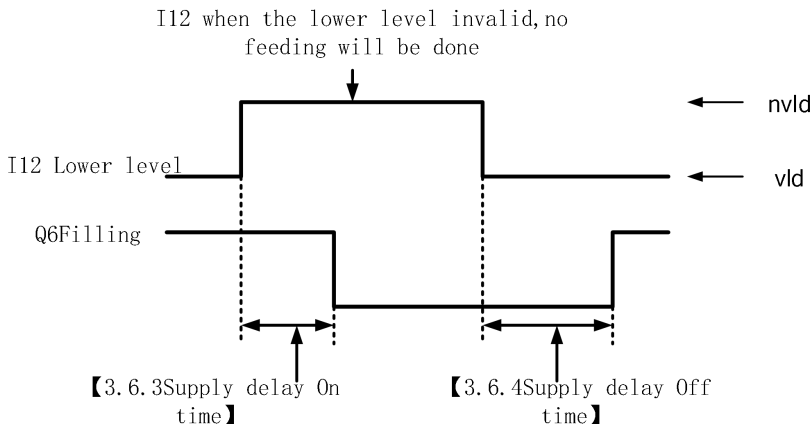
3.6.1	Material level Type	① NONE ② Only Lower ③ upper& lower ④ Only upper Note: If the mode including the material discharge level is selected, the feeding will not be initiated when the material discharge level signal input is invalid.	①NONE
3.6.2	Supply trigger	① Off: Turn off the feed output function ② lower trigger: The feeding function is triggered when the "I12. Lower level" signal input is invalid. ③upper trigger: The feeding function is triggered when the "I11. Upper level" signal input is invalid. For a detailed introduction to the feeding function, please refer 2.3.6.1 to the section.	①OFF
3.6.3	Supply delay on time	0~60,000ms; After the feeding function is triggered, delay for this period of time before output the "Q6. Supply fill".	0ms
3.6.4	Supply delay off time	0~60,000ms; After the feeding is completed, delay for this period of time before turning off the "Q6. Supply fill".	3000ms
3.6.5	Supply work time	①run &stop: Supply materials both during operation and stoppage. ② Only Run: Feeding only during operation.	① Operation and stop
3.6.6	Signal in debounce time	0~60,000ms; The debunking time of the "I11.upper Level" and "I12. Lower level" signal inputs. The signal is considered valid after it has been continuously and effectively maintained for this period of time.	500ms

		The signal is considered invalid after continuous invalidity persists for this period of time. Prevent interference caused by occasional instantaneous interruption or conduction of the signal.	
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2.3.6.1. Detailed description of the feeding function

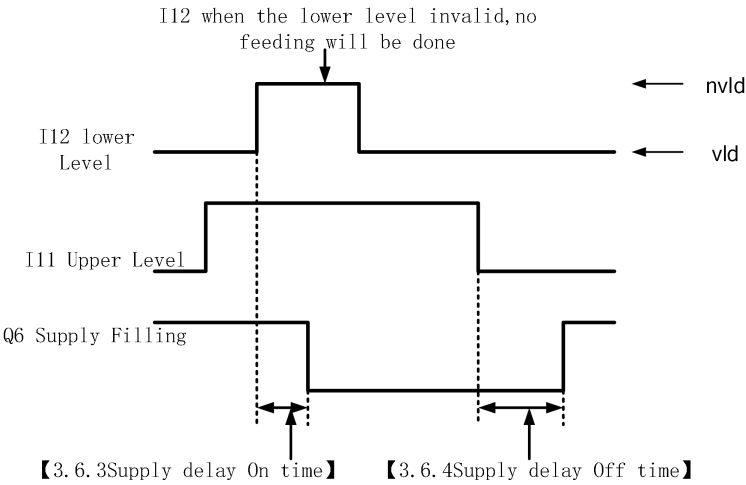
Material level mode: single Lower level; feed trigger: lower level trigger.

1. The timing diagram is as follows:



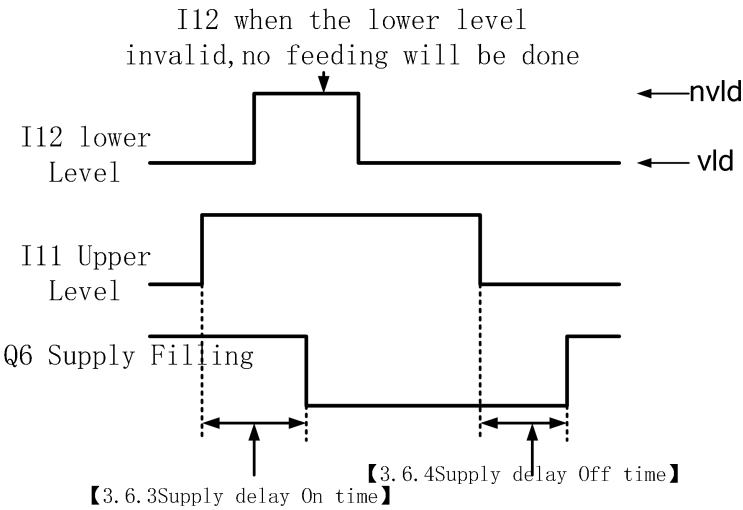
2. Material level mode: upper and lower level; feeding trigger: lower level trigger.

The timing diagram is as follows:



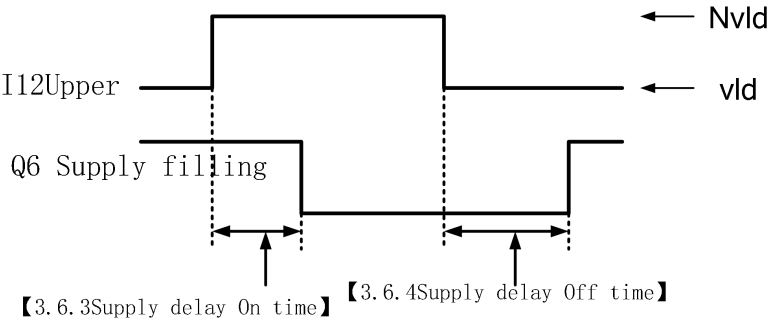
3. Material level mode: upper and lower level; feed trigger: Upper level trigger.

The timing diagram is as follows:



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

The timing diagram is as follows:



2.3.7.Run monitor

Time monitoring of each process during operation, alarm and handling after process timeout.

number	Parameter	Explanation	Init value
3.7	Run monitor		
3.7.1	Feed timeout	0.0~999.9 seconds; If the time taken to add materials during operation exceeds the set "feeding timeout time" and the feeding is not completed, it is considered that the feeding has exceeded the time limit. When set to 0, the feeding timeout detection function is turned off.	0.0 s
3.7.2	Execute feed timeout	① Warning: Only give an alarm prompt. ② Wrn& stop : The alarm prompts and switches to the stop state. ③ Wrn& stop feeding : The alarm will prompt and immediately stop feeding to continue the subsequent process.	② Wrn& stop
3.7.3	Feed timeout Alarm time	0.0~999.9 seconds; The output time of the feeding timeout alarm will be displayed. The alarm will be automatically cleared when the time is up. When set to 0, the feeding timeout alarm	3.0 s

		will keep outputting and can only be manually cleared.	
3.7.4	Disc timeout	0.0~999.9 seconds; If the time taken for Disc during operation exceeds the set "Disc timeout time" and the Disc is not completed, it is considered that the Disc has exceeded the timeout. When set to 0, the Disc timeout detection function is turned off.	0.0 s
3.7.5	Execute Disc Timeout	①Warning: Only give an alarm prompt. ② Wrn& stop : The alarm prompts and switches to the stop state. ③ Wrn& stop Disc: Alarm prompts and immediately end Disc to continue the subsequent process.	② Wrn& stop
3.7.6	Disc timeout Alarm time	0.0~999.9 seconds; The output time of the Disc timeout alarm will be displayed. The alarm will be automatically cleared when the time is up. When set to 0, the Disc timeout alarm will continue to output and can only be manually cleared.	3.0 s
3.7.7	Auto zero Timeout	0.0~ 999.9 seconds; The prerequisite for zeroing out is stable weight. When the "3.1.3 Auto Zero Interval" is set and zeroing is required before feeding, if the waiting time for zeroing exceeds the set "Feeding Zeroing timeout Time" due to unstable weight and the zeroing has not been completed, it is considered that the feeding zeroing timeout has occurred. When set to 0, the feeding reset timeout detection function is turned off.	0.0 s
3.7.8	Execute Auto	①Warning: Only give an alarm prompt.	Wrn 3times

	Zero timeout	② Wrn& stop: The alarm prompts and switches to the stop state. ③ Wrn& Force zero: An alarm will prompt and force the current weight to be reset to zero. ④ Wrn&Next: The alarm prompts and skips the zeroing process. Reset the next package before adding materials. ⑤ Wrn 3times stop: The alarm prompts and skips the zeroing process. If all three consecutive zeroing attempts exceed the time limit, it will switch to the stop state.	stop
3.7.9	Auto Zero Timeout Alarm Time	0.0~999.9 seconds; The output time of the alarm for the feeding and zeroing timeout will be displayed. The alarm will be automatically cleared when the time is up. When set to 0, the feeding reset timeout alarm will continue to output and can only be manually cleared.	3.0 s
3.7.10	Check Disc Close	① Off ② NO: Before feeding, check whether the "Disc close OK" signal is valid. If it is not, an alarm will sound that the discharge has not been closed in place.	① Off
3.7.11	Execute Disc Close Failed	① warning: Only give an alarm prompt. ② Wrn & stop: The alarm prompts and switches to the stop state.	① warning
3.7.12	Disc. Close failed alarm time	0.0~999.9 seconds; The output time of the alarm for incomplete Disc will be displayed. The alarm will be automatically cleared when the time is up. When set to 0, if the Disc is not fully closed, the alarm will continue to output and can only be manually cleared.	0.0 s

2.3.8. Bag clamping and coding

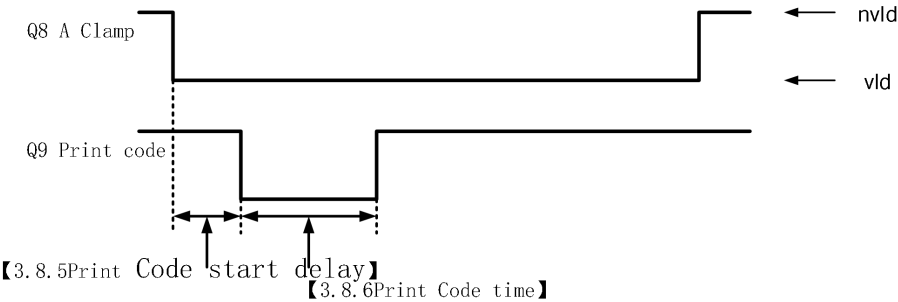
Parameter Settings related to bag clamping and coding functions.

number	Parameter	Explanation	Init value
3.8	clamp and Print coding		
3.8.1	Clamp delay time	0~60,000ms; After the "Q8. Clamp" is output and passes through the "Clamp delay time ", it is considered that the bag clamping action is completed and the subsequent process can continue.	500ms
3.8.2	Unclamp delay time	0~60,000ms; After the "Q8.Clamp" is turned off and the "Unclamp delay time " is passed, it is considered that the bag release action is completed and the subsequent process can continue.	500ms
3.8.3	Unclamp mode running	① Auto unclamp: The bags are automatically loosened after Disc is completed. ② Manual unclamp: After the Disc is completed, input the "I14. Clamp/Disc En" signal externally to perform manual bag loosening.	① Auto unclamp
3.8.4	Print code Func.	① Off ② On The main switch for the coding function. When the function is enabled, after the bag is clamped, the "Q9. Print Code" signal is output to control the coding machine to print the code onto the bag. For the sequence diagram of the blurring function, please refer to the section 2.3.8.1	① Off
3.8.5	Print code start delay	0~60,000ms; After the "Q8. Clamp " signal is output, it passes through the "Print code start delay" and then outputs the "Q9. Print	500ms

		Code" .	
3.8.6	Print code time	0~60,000ms; The effective time of the "Q9. Print Code" signal output.	1000ms
3.8.7	Do not Disc. when Printing	① off ② ON: When the "Q9. Print Code" signal output is valid, the Disc process will not be initiated and wait for "Q9. Print Code " signal output is turned off.	① off

2.3.8.1. Detailed description of the blurring function

The sequence diagram of the blurring function is as follows:



2.4. Step motor Settings

When the [3.4.1 Disc Ctrl Mode] is set to "⑤ Step motor One Dir" or "⑥ Step motor two Dir ", this parameter is used to set the relevant functional parameters for the operation of the unloading stepper motor.

The controller has a total of 5 groups of stepper motor parameters available for setting. Users can adopt different unloading stepper motor action controls according to different material packaging specifications. In the formula parameter [5.6 Step Motor Group], select the corresponding unloading stepper motor parameter group used in the formula.

2.4.1. Motor parameter group number

Set the parameter group number of the currently selected stepper motor.

number	Parameter	Explanation	Init value
4.1	group num	1~5	1

2.4.2.Disc motor of Channel 1#

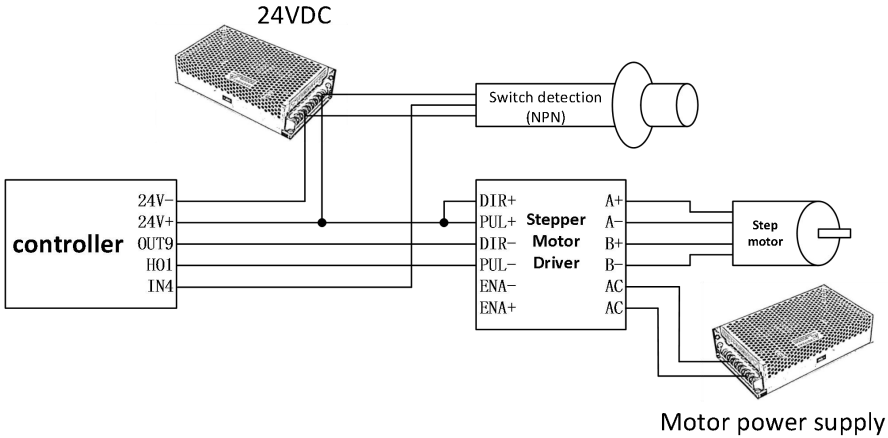
Set the relevant action parameters of the stepping motor for discharging Channel 1#.

number	Parameter	Explanation	Init value
4.2	No. 1 unloading step		
4.2.1	Run frequ	0.0-60.0KHz;Control the pulse frequency of the stepper motor's rotation. The higher the frequency, the faster the action.	20.0KHz
4.2.2	Open Pulses	0-250,000 The number of pulses required for the discharge door to rotate from the closed position to the open position.	10000
4.2.3	Close Pulses	0-250,000 The number of pulses required for the discharge door to rotate from the open position to the closed position. This parameter can be set to 0. When closing the door, the stepping motor will keep rotating until the door is closed in place.	0
4.2.4	Start frequ	0.0-60.0KHz;The frequency at which a stepper motor starts.	2.0KHz
4.2.5	Start pulses	0-250,000 The number of pulses required for a stepping motor to accelerate from the "starting frequency" to the "pulse frequency".	1000
4.2.6	Stop frequ	0.0-60.0KHz;The frequency at which the stepper motor has completed deceleration.	2.0KHz
4.2.7	Stop pulses	0-250,000 The number of pulses required for a stepping motor to decelerate from the [operating frequency] to the [deceleration	1000

		frequency].	
4.2.8	direct sign	①OFF-ON: "Q1_17.1# Disc direction" signal The output is valid when the door is opened and invalid when it is closed. ②ON-OFF -Door opening: "Q1_17.1# Disc direction " signal The output is invalid when the door is opened and valid when the door is closed.	② OFF-ON
4.2.9	Enable sign	① ON-Enable: "Q1_22.1Disc enable" signal When the stepper motor is enabled, the output is effective; when it is disabled, the output is ineffective. ②OFF-Enable:: "Q1_17.1# Disc direction " signal When the stepper motor is enabled, the output is invalid; when it is disabled, the output is valid.	② OFF-Enable :

2.4.2.1. Detailed description of step motor action control

This controller adopts a control mode of "pulse" + "direction" signals for the rotational action control of the stepper motor. The "pulse" signal controls the rotation of the stepper motor, and the "direction" signal controls the rotation direction of the stepper motor. The following figure shows a common wiring reference for stepper motor drivers:



The switch quantities of the controller in the figure are defined as follows:

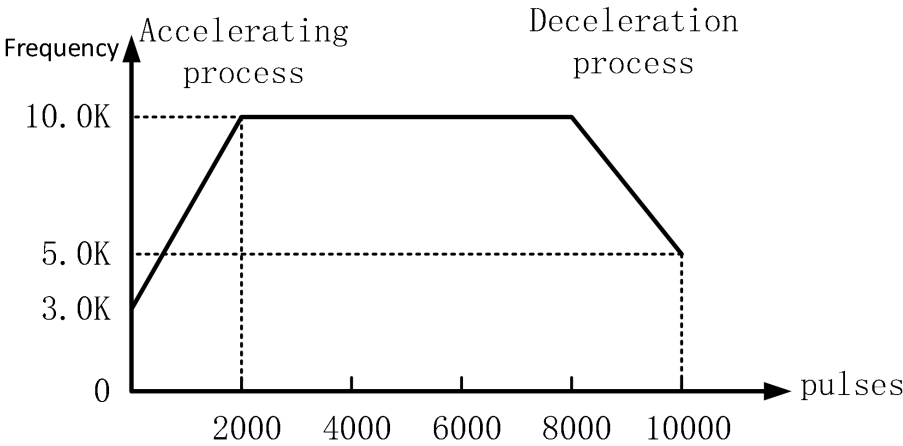
OUT9	Q1_17.1 # Unloading step direction
H01	P1.1 # Disc pulse
IN4	I1_10.1 # Disc close OK

The pulse signal frequency of the stepper motor controls the rotational speed of the stepper motor. This frequency parameter needs to be well coordinated with the subdivision parameters of the stepper motor driver. If the subdivision parameter of the stepper motor is set to 1000 pulses per revolution, then when controlled with 2.0KHz pulses, the rotational speed of the stepper motor is 2 revolutions per second.

When a stepper motor is in operation, to prevent problems such as step loss caused by excessive torque required during rotation due to heavy load, a process of gradually accelerating at start-up and gradually decelerating at stop is adopted to ensure smooth and stable operation and prevent issues like step loss. The following figure illustrates the actions of a stepping motor when it starts and stops:

- 【4.2.1 Run frequ】 Set to 10.0KHz.
- 【4.2.2 Open Pulses】 Set to 10,000.
- 【4.2.4 Start frequ】 Set to 3.0KHz.
- 【4.2.5 Start pulses】 Set to 2000.
- 【4.2.6 Stop frequ】 Set to 5.0KHz.
- 【4.2.7 Stop pulses】 Set to 2000.

Based on the above parameters, the relationship between the frequency and the number of pulses when the unloading stepping motor opens the door is shown in the following figure:



2.4.3.Disc motor for channels 2# to 6#

Refer to the relevant instructions for the unloading step of Channel 1#.

2.5. Formula setting

The controller has 20 sets of formula parameters available for setting. Users can set the commonly used formula parameters in advance and switch them to the corresponding formula numbers when in use.

2.5.1.Formula number

Set the currently selected recipe number.

number	Parameter	Explanation	Init value
5.1	Recipe num	1~20	1

2.5.2.Feed speed selection

Each channel of the controller has two analog quantities (U-1 and U-2) to control the feeding of the dual vibrating feeders. The analog output used for fast, med and slow feeders can be set respectively.

As shown in the following figure, this formula adopts two feeding speeds (med

feeding and slow feeding). During med feeding, both analog quantities 1 and 2 are output simultaneously, while during slow feeding, only analog quantity 2 is output.

【5.2Feed speed】 The parameter setting interface is as follows:

2.5.3.Product specification

Set the target value and other product specification-related parameters under the current formula.

number	Parameter	Explanation	Init value
5.3	Product		
5.3.1	1# Target value		
5.3.1.1	1# Target	Set the target weight of the product to be packaged.	0
5.3.1.2	1# Fast feed	When adding materials, if the weight value $\geq$ the target value - Fast feed , close the fast feeding. When set to 0, it indicates that the fast output process will not be initiated.	0
5.3.1.3	1# Med feed	When adding materials, if the weight value $\geq$ the target value - Med feed , turn off the middle input. When set to 0, it indicates that the mid-input output process will not be initiated.	0
5.3.1.4	1# Slow feed	When adding materials, if the weight value $\geq$ the target value - Slow feed , close the slow input.	0
5.3.7	Over tolerance	When conducting over/under detection, if the weighing result $>$ the target value + Over tolerance , it will be judged as Over.	0
5.3.8	Under tolerance	When conducting o over/under detection, if the weighing value $<$ the target value - Under tolerance , it is judged as under.	0

5.3.9	Scale Cmb Times	1~99 Set the number of times a packaging bag needs to be unloaded, that is, how many times it needs to be unloaded before loosening the bag once. This function takes effect when the "3.4.2 Disc. Start Condition" is set to "③clamp bag.	1
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2.5.4.Feed analog

Set the voltage values of the analog quantities U-1 and U-2 output respectively during the fast, med and slow input processes.

number	Parameter	Explanation	Init
5.4	Feed analog		
5.4.1	"U1 Settings"		
5.4.1.1	U1-1 fast feed volt	0.000~5.000V; The voltage value output by U1-1 during the fast feed process.	0
5.4.1.2	U1-1 med feed volt	0.000~5.000V; The voltage value output by U1-1 during the med feeding process. ;	0
5.4.1.3	U1-1 slow feed volt	0.000~5.000V; The voltage value output by U1-1 during the slow feed process.	0
5.4.1.4	U1-2 fast feed volt	0.000~.000V; The voltage value output by U1-2 during the fast feed process.	0
5.4.1.5	U1-2 med feed volt	0.000~5.000V; The voltage value output by U1-2 during the med feed process.	0
5.4.1.6	U1-2 slow feed volt	0.000~5.000V; The voltage value output by U1-2 during the slow feed process.	0
5.4.2	U2 Settings	Refer to the relevant instructions for U1 settings.	
5.4.3	U3 Settings		
5.4.4	U4 Settings		
5.4.5	U5 Settings		
5.4.6	U6 Settings		
5.4.2	U2 Settings		

2.5.5. Time parameter

Settings of relevant time parameters during the feeding process.

number	Parameter	Explanation	Init
5.5	Time parameter		
5.5.1	1# Time comparison is prohibited		
5.5.1.1	1#Fast No Cmp Time	0~60,000ms; The vibration elimination time at the beginning of the fast throw. During this time, the fast throw signal remains valid and is not affected by weight. Only after this time ends is it determined whether the weight has reached the lead time for the fast throw, and thus the fast throw ends.	500ms
5.5.1.2	1#Med No Cmp Time	0~60,000ms; The vibration elimination time at the beginning of the med feed, during which the med feed signal remains valid and is not affected by weight. Only after this time ends is it determined whether the weight has reached the med feed, and thus the med output ends.	500ms
5.5.1.3	1#Slow No Cmp Time	0~60,000ms; The vibration elimination time at the beginning of the slow throw, during which the slow throw signal remains valid and is not affected by weight. Only after this time ends is it determined whether the weight has reached the slow throw drop value, and thus the slow throw ends.	800ms
5.5.2	2# No Cmp Time	Refer to the relevant instructions on prohibiting comparison of time Settings in # 1	
5.5.3	3# No Cmp Time		
5.5.4	4# No Cmp Time		

5.5.5	5# No Cmp Time		
5.5.6	6# No Cmp Time		
5.5.7	Result Hold time	0~60,000ms; After the feeding is completed, wait for this period of time before performing functions such as result accumulation and ove/und detection.	1000ms
5.5.8	Disc hold time	0~60,000ms; The holding time after the disc door is opened during disc. For a detailed introduction to the related functions of this parameter, please refer 2.3.4.1 to the section.	1000ms
5.5.9	Delay before auto unclamp	0~60,000ms; The delay time from the completion of Disc during operation to the automatic unclamp.	500ms

2.5.6.Step motor group

Set the parameter group number of the stepper motor used in the current formula.

number	Parameter	Explanation	Init value
5.6	Step motor group	1~5	1

2.6.AI packaging

The controller is equipped with an AI intelligent packaging algorithm independently developed by my company for the packaging process. It can collect the characteristic parameters of each feeding process, calculate the collected data through machine learning AI algorithms, and automatically adjust the parameters to make the operation of the packaging scale both fast and accurate.

When the intelligent packaging function is activated, the controller will automatically adjust the following parameters:

【Fast feed】

【Med feed】

【Slow feed】

【Med No Cmp Time】

【slow No Cmp Time】

In addition, when the feed analog or Fast/med/slow Feed is all set to 0, the automatic learning process of the simulation quantity or the lead amount will be initiated first. For details, please refer to 2.6.4 the description in the section.

2.6.1. Function Settings

number	Parameter	Explanation	Init value
6.1	Function Settings		
6.1.1	AI pack	① OFF /② ON	①OFF
6.1.2	Material type	① Granule /② powder The AI intelligent packaging algorithm can be optimized for different types of materials to obtain relevant parameters that are more suitable for the characteristics of each material.	① Particle
6.1.3	1# Sampled data	0 to 100; Display the number of packaging process data that have been sampled and saved by the intelligent packaging function. Press  the confirmation key to clear the sampling data.	0
6.1.4	2# Sampled data		
6.1.5	3# Sampled data		
6.1.6	4# Sampled data		
6.1.7	5# Sampled data		
6.1.8	6# Sampled data		

2.6.2. Speed control

The parameters related to the packaging speed control of the AI intelligent packaging function can be set to be automatically calculated and controlled by the AI intelligent packaging algorithm, or the customer can manually set the packaging speed to be controlled, and the AI intelligent packaging algorithm will adjust the parameters to achieve the set speed.

Note: If the packaging speed set manually is too fast, exceeding the speed that the equipment can achieve, there may be a problem of inaccurate packaging accuracy.

number	Parameter	Explanation	Init value
6.2	Speed control		
6.2.1	Speed control mode	①Auto: The controller automatically controls the packaging speed ② Manual: The packaging speed is determined by the set parameters [6.2.3 Slow Min Time] and [6.2.4 Minimum input Error Time].	① Auto
6.2.2	Speed grade	0~4; 【6.2.1 Speed Control Mode 】 It works when set to automatic, and the smaller the number, the faster the speed.	1
6.2.3	Slow Min Time	0~60,000ms; 【6.2.1 Speed Control Mode 】 When set to manual, these two time parameters are used to determine the standard time for the slow throw.	800ms
6.2.4	Slow Error Time	The prohibited comparison time for slow investment + the shortest time for slow investment ≤ the standard time for slow investment ≤ the prohibited comparison time for slow investment + the shortest time for slow investment + the error time for slow investment. The intelligent packaging function controls the slow drop time to always be within the standard time by adjusting the lead parameter.	500ms
6.2.5	Med Min Time	0~60,000ms; These two time parameters determine the standard time for mid-investment.	500ms
6.2.6	Med Error Time	The prohibited comparison time for mid-range investment + the shortest mid-range investment time ≤ the standard mid-range investment time ≤ the prohibited comparison time for mid-range investment + the shortest mid-range investment time + the mid-range investment error time. The intelligent packaging function controls the input time to always be within the standard time by	500ms

		adjusting the lead parameter.	
6.2.7	Fast Buff	When decelerating, increase this buffer value on the basis of a fast lead investment.	
6.2.8	Med Buff	When decelerating, increase this buffer value on the basis of the mid-range lead.	
6.2.9	Start slow	① OFF ② ON: When starting up, increase the lead time for Fast feed and med feed to reduce the packaging speed.	① OFF
6.2.10	Lack Slow	① OFF ② ON: When there is a shortage of materials, increase the fast feed and med feed, and reduce the packaging speed.	① OFF

2.6.3.AI choose

The correction switches for fast, med and slow investments can be controlled separately. Once turned off, the AI intelligent packaging algorithm will no longer adjust the corresponding lead time.

6.3	Correction switch		
6.3.1	Fast AI Func	① OFF: Do not correct the "Fast feed" parameter ② ON	② ON
6.3.2	Med AI Func	① OFF: Do not correct the "Med feed" parameter ② ON	② ON
6.3.3	Slow AI Func	① OFF: Do not correct the "Slow feed" parameter ② ON	② ON
6.3.4	Med NoCmp AI	① OFF: Do not correct the parameter "Med No Cmp time" ② ON	② ON
6.3.5	Slow NoCmp AI	① OFF: Do not correct the parameter "Slow No Cmp Time" ② ON	② ON

2.6.4.Initial value

The AI intelligent packaging algorithm control is divided into two stages: 1. The automatic learning stage, and 2. The automatic correction stage.

The automatic learning stage is further divided into self-learning of the feeding simulation quantity and self-learning of the lead quantity.

When all the feeding analog quantities are set to 0 for startup, the controller will enter the self-learning process of the feeding analog quantities. First, the learning process of the feeding voltage will be carried out, and then normal feeding will start. Based on the various values automatically learned, automatic correction will be made.

When the feeding simulation quantity is set but the lead time is all set to 0 for startup, the controller will enter the automatic learning process of the lead time. First, carry out the learning process of the advance quantity, and then the normal feeding will start. Based on the various values automatically learned, automatic correction will be made.

6.4	Learn the initial value		
6.4.1	Fast Init	1%~99% When the lead amounts for fast, med and slow feed are all set to 0, the controller starts to self-learn the initial values of the lead amounts for fast feed and med feed.	80%
6.4.2	Med Init		40%
6.4.3	Slow time	0 ~60,000ms; The feeding time of the controller when learning the slow feed.	2000
6.4.4	U increase	0-5.000V/s When all the feeding analog quantities are set to 0, the controller starts to automatically learn the feeding voltage value and the increase in voltage during the lead time.	0.300 V/s

2.7.IO

The functions corresponding to the input and output ports of the switch quantity can be defined, and the switch quantity testing function can be used to test whether the external switch quantity circuit is normal.

2.7.1.IN Setting

Define the functions corresponding to the `switch` input ports IN1 to IN9. Select

the switch port you want to set, and then choose the function you want to define in the option box list.

number	Parameter	Explanation	Init value
7.1	Input Definition (IN)		
7.1.1	IN1	Input Definition Option list details 2.7.1.1。	I1. Running
7.1.2	IN2		I2. Stop
7.1.3	IN3		I14. Clamp/Disc. En
7.1.4	IN4		I1_10.1#Disc. Close OK
7.1.5	IN5		I2_10.2#Disc. Close OK
7.1.6	IN6		I3_10.3#Disc. Close OK
7.1.7	IN7		I4_10.4#Disc. Close OK
7.1.8	IN8		I5_10.5#Disc. Close OK
7.1.9	IN9		I6_10.6#Disc. Close OK

2.7.1.1. List of switch input functions

Number	Function name	Description
I0	NONE	No function definition.
Overall function		
I1	Running	All channels are started and running.
I2	Stop	All channels have stopped operating.
I3	Slow stop	All channels enter the slow-stop process, that is, they automatically stop running after the completion of this packaging process.
I4	Zeroing	All channels undergo a zeroing operation once.
I5	Clear alarm	Clear the alarm status of all channels.
I6	Change Rec.	It is effective to automatically switch to the next formula with a non-zero target value once.
I7	Clr total Acc	Clear the total cumulative data.
I8	Clr Rec Acc	Clear the cumulative data of the current formula.
I9	Running/Stop	All channels Start running when effective.

		Stop running when it is ineffective.
I10	Running /Slow stop	All channels Start running when effective. When ineffective, enter the pause process.
I11	Upper level	Input signal for material level detection. When effective, it is considered that the material has reached the feeding level.
I12	Lower level	Input signal for material discharge level detection. When effective, it is considered that the material has reached the discharge level. When ineffective, it is considered that the material has dropped below the discharge level and is in a state of material shortage.
I13	Clr material	All channels In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I14	Clamp/Disc En	【3.1.1 Working Mode】 It works when set to "① Interlock Mode". 【3.4.2 Disc Start Condition】 When set to "③clamp bag", it is used as the input function for the bag clamping and loosening signal. 【3.4.2 Disc Start Condition】 When set to "① Disc enable", it is used as the input function for the unloading signal.
I15	AI pack Disable	When this input is valid, the AI smart packaging function is disabled.
Function 1#		
I1_1	1#running	Start running.
I1_2	1#Stop	Stop running.
I1_3	1# Slow stop	Enter the slow stop process, that is,

		automatically stop running after the completion of this packaging process.
I1_4	l# zeroing	Perform a reset operation.
I1_5	l#Clr Alarm	Clear the alarm status.
I1_6	l#running /Stop	Start running when effective. Stop running when it is ineffective.
I1_7	l#running /Slow Stop	Start running when effective. When ineffective, enter the pause process.
I1_8	l#clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I1_9	l#Manual Disc	Manual unloading input signal, input effectively to execute the unloading process.
I1_10	l# Disc close ok	Input signal of the detection switch for the discharge door to be fully closed. Valid indicates that the discharge door has been fully closed.
I1_11	l#Manual slow	In the stopped state, when it is effective, the slow throw is enabled; when it is effective again, the slow throw is disabled.
I1_12	l#Manual med	When in the stopped state, if it is effective, turn on the mid-range investment; if it is effective again, turn it off.
I1_13	l#Manual fast	In the stopped state, when it is effective, the fast throw is enabled; when it is effective again, the fast throw is disabled.
I1_14	l#Clamp/Disc En	【3.1.1 Working Mode 】 It works when set to "② single Mode". 【3.4.2 Disc Start Condition 】 When set to "③clamp bag", it is used as the input function for the bag clamping and loosening signal. 【3.4.2 Disc Start Condition 】 When set to "① Disc En", it is used as the input function for

		the Disc signal.
Function 2#		
I2_1	2# running	Start running.
I2_2	2# Stop	Stop running.
I2_3	2# Slow stop	Enter the slow-stop process, that is, automatically stop running after the completion of this packaging process.
I2_4	2# zeroing	Perform a reset operation.
I2_5	2#Clr Alarm	Clear the alarm status.
I2_6	2#running /Stop	Start running when effective. Stop running when it is ineffective.
I2_7	2# running /Slow Stop	Start running when effective. When ineffective, enter the pause process.
I2_8	2#clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I2_9	2#Manual Disc	Manual unloading input signal, input effectively to execute the unloading process.
I2_10	2# Disc close ok	Input signal of the detection switch for the discharge door to be fully closed. Valid indicates that the discharge door has been fully closed.
I2_11	2#Manual slow	In the stopped state, when it is effective, the slow throw is enabled; when it is effective again, the slow throw is disabled.
I2_12	2#Manual med	When in the stopped state, if it is effective, turn on the mid-range investment; if it is effective again, turn it off.
I2_13	2#Manual fast	In the stopped state, when it is effective, the fast throw is enabled; when it is effective again, the fast throw is disabled.
I2_14	2#Clamp/Disc En	【3.1.1 Working Mode 】 It works when set to "② Single Mode".

		【 3.4.2 Disc Start Condition 】 When set to "③clamp bag", it is used as the input function for the bag clamping and loosening signal. 【 3.4.2 Disc Start Condition 】 When set to "① Disc En", it is used as the input function for the Disc signal.
Function 3#		
I3_1	3# running	Start running.
I3_2	3# Stop	Stop running.
I3_3	3# Slow stop	Enter the slow-stop process, that is, automatically stop running after the completion of this packaging process.
I3_4	3# zeroing	Perform a reset operation.
I3_5	3#Clr Alarm	Clear the alarm status.
I3_6	3#running /Stop	Start running when effective. Stop running when it is ineffective.
I3_7	3# running /Slow Stop	Start running when effective. When ineffective, enter the pause process.
I3_8	3#clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I3_9	3#Manual Disc	Manual unloading input signal, input effectively to execute the unloading process.
I3_10	3# Disc close ok	Input signal of the detection switch for the discharge door to be fully closed. Valid indicates that the discharge door has been fully closed.
I3_11	3#Manual slow	In the stopped state, when it is effective, the slow throw is enabled; when it is effective again, the slow throw is disabled.
I3_12	3#Manual med	When in the stopped state, if it is effective, turn on the mid-range investment; if it is effective again, turn it off.

I3_13	3#Manual fast	In the stopped state, when it is effective, the fast throw is enabled; when it is effective again, the fast throw is disabled.
I3_14	3#Clamp/Disc En	【3.1.1 Working Mode 】 It works when set to "② Single Mode". 【3.4.2 Disc Start Condition 】 When set to "③clamp bag", it is used as the input function for the bag clamping and loosening signal. 【3.4.2 Disc Start Condition 】 When set to "① Disc En", it is used as the input function for the Disc signal.
Function 4#		
I4_1	4#running	Start running.
I4_2	4# Stop	Stop running.
I4_3	4# Slow stop	Enter the slow-stop process, that is, automatically stop running after the completion of this packaging process.
I4_4	4# zeroing	Perform a reset operation.
I4_5	4#Clr Alarm	Clear the alarm status.
I4_6	4#running /Stop	Start running when effective. Stop running when it is ineffective.
I4_7	4# running /Slow Stop	Start running when effective. When ineffective, enter the pause process.
I4_8	4#clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I4_9	4#Manual Disc	Manual unloading input signal, input effectively to execute the unloading process.
I4_10	4# Disc close ok	Input signal of the detection switch for the discharge door to be fully closed. Valid indicates that the discharge door has been fully closed.
I4_11	4#Manual slow	In the stopped state, when it is effective, the

		slow throw is enabled; when it is effective again, the slow throw is disabled.
I4_12	4#Manual med	When in the stopped state, if it is effective, turn on the mid-range investment; if it is effective again, turn it off.
I4_13	4#Manual fast	In the stopped state, when it is effective, the fast throw is enabled; when it is effective again, the fast throw is disabled.
I4_14	4#Clamp/Disc En	【3.1.1 Working Mode 】 It works when set to "② single Mode". 【 3.4.2 Disc Start Condition 】 When set to "③clamp bag", it is used as the input function for the bag clamping and loosening signal. 【3.4.2 Disc Start Condition 】 When set to "① Disc En", it is used as the input function for the Disc signal.
Function 5#		
I5_1	5#running	Start running.
I5_2	5# Stop	Stop running.
I5_3	5# Slow stop	Enter the slow-stop process, that is, automatically stop running after the completion of this packaging process.
I5_4	5# zeroing	Perform a reset operation.
I5_5	5#Clr Alarm	Clear the alarm status.
I5_6	5#running /Stop	Start running when effective. Stop running when it is ineffective.
I5_7	5# running /Slow Stop	Start running when effective. When ineffective, enter the pause process.
I5_8	5#clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I5_9	5#Manual Disc	Manual unloading input signal, input effectively

		to execute the unloading process.
I5_10	5# Disc close ok	Input signal of the detection switch for the discharge door to be fully closed. Valid indicates that the discharge door has been fully closed.
I5_11	5#Manual slow	In the stopped state, when it is effective, the slow throw is enabled; when it is effective again, the slow throw is disabled.
I5_12	5#Manual med	When in the stopped state, if it is effective, turn on the mid-range investment; if it is effective again, turn it off.
I5_13	5#Manual fast	In the stopped state, when it is effective, the fast throw is enabled; when it is effective again, the fast throw is disabled.
I5_14	5#Clamp/Disc En	【3.1.1 Working Mode 】 It works when set to "② single Mode". 【 3.4.2 Disc Start Condition 】 When set to "③clamp bag", it is used as the input function for the bag clamping and loosening signal. 【3.4.2 Disc Start Condition 】 When set to "① Disc En", it is used as the input function for the Disc signal.
Function 6#		
I6_1	6#running	Start running.
I6_2	6# Stop	Stop running.
I6_3	6# Slow stop	Enter the slow-stop process, that is, automatically stop running after the completion of this packaging process.
I6_4	6# zeroing	Perform a reset operation.
I6_5	6#Clr Alarm	Clear the alarm status.
I6_6	6#running /Stop	Start running when effective. Stop running when it is ineffective.
I6_7	6# running /Slow Stop	Start running when effective. When ineffective, enter the pause process.

I6_8	6#clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I6_9	6#Manual Disc	Manual unloading input signal, input effectively to execute the unloading process.
I6_10	6# Disc close ok	Input signal of the detection switch for the discharge door to be fully closed. Valid indicates that the discharge door has been fully closed.
I6_11	6#Manual slow	In the stopped state, when it is effective, the slow throw is enabled; when it is effective again, the slow throw is disabled.
I6_12	6#Manual med	When in the stopped state, if it is effective, turn on the med-range investment; if it is effective again, turn it off.
I6_13	6#Manual fast	In the stopped state, when it is effective, the fast throw is enabled; when it is effective again, the fast throw is disabled.
I6_14	6#Clamp/Disc En	【3.1.1 Working Mode 】 It works when set to "② single Mode". 【3.4.2 Disc Start Condition 】 When set to "③clamp bag", it is used as the input function for the bag clamping and loosening signal. 【3.4.2 Disc Start Condition 】 When set to "① Disc En", it is used as the input function for the Disc signal.
Group [1] Function		
I[1]_1	G[1]Running	Start running.
I[1]_2	G[1]stop	Stop running.
I[1]_3	G[1]Slow stop	Enter the slow-stop process, that is, automatically stop running after the completion of this packaging process.
I[1]_4	G[1] zeroing	Perform a reset operation.

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I[1]_5	G[1]clear alarm	Clear the alarm status.
I[1]_6	G[1]Running/stop	Start running when effective. Stop running when it is ineffective.
I[1]_7	G[1]Running/Slow stop	Start running when effective. When ineffective, enter the pause process.
I[1]_8	G[1]Clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.
I[1]_9	G[1]Clamp/Disc.En	【3.1.1 Working Mode 】 It works when set to "③ group Mode". 【3.4.2 Disc Start Condition 】 When set to "③ clamp bag", it is used as the input function for the clamp and unclamp signal. 【3.4.2 Disc Start Condition 】 When set to "① Disc Enable", it is used as the input function for the unloading signal.
Group [2] Function		
I[2]_1	G[2]Running	Start running.
I[2]_2	G[2]stop	Stop running.
I[2]_3	G[2]Slow stop	Enter the slow-stop process, that is, automatically stop running after the completion of this packaging process.
I[2]_4	G[2] zeroing	Perform a reset operation.
I[2]_5	G[2]clear alarm	Clear the alarm status.
I[2]_6	G[2]Running/stop	Start running when effective. Stop running when it is ineffective.
I[2]_7	G[2]Running/Slow stop	Start running when effective. When ineffective, enter the pause process.
I[2]_8	G[2]Clr material	In the stopped state, the material cleaning process is effectively initiated once. When it is effective again, the material cleaning is turned off.

I[2]_9	G[2]Clamp/Disc.En	【3.1.1 Working Mode 】 It works when set to "③ group Mode". 【3.4.2 Disc Start Condition 】 When set to "③ clamp bag", it is used as the input function for the clamp and unclamp signal. 【3.4.2 Disc Start Condition 】 When set to "① Disc Enable", it is used as the input function for the unloading signal.
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2.7.2.OUT Setting

Define the functions corresponding to the switch output ports OUT1 to OUT18. Select the switch port you want to set, and then choose the function you want to define in the option box list.

number	Parameter	Explanation	Init value
7.2	Output definition (OUT)		
7.2.1	OUT1	Output Definition Option details2.7.2.1。 list	Q1.Running
7.2.2	OUT2		Q8.clamp
7.2.3	OUT3		Q1_10.1#Disc.On
7.2.4	OUT4		Q2_10.2#Disc.On
7.2.5	OUT5		Q3_10.3#Disc.On
7.2.6	OUT6		Q4_10.4#Disc.On
7.2.7	OUT7		Q5_10.5#Disc.On
7.2.8	OUT8		Q6_10.6#Disc.On
7.2.9	OUT9		Q1_17.1#Disc.Direction
7.2.10	OUT10		Q2_17.2#Disc.Direction
7.2.11	OUT11		Q3_17.3#Disc.Direction
7.2.12	OUT12		Q4_17.4#Disc.Direction
7.2.13	OUT13		Q5_17.5#Disc.Direction
7.2.14	OUT14		Q6_17.6#Disc.Direction
7.2.15	OUT15		Q1_15.1#Feed Complete
7.2.16	OUT16		Q2_15.2#Feed Complete

7.2.17	OUT17		Q3_15.3#Feed Complete
7.2.18	OUT18		Q4_15.4#Feed Complete

2.7.2.1. List of switch output functions

Number	Function name	Description
Q0	NONE	No function definition.
Overall function		
Q1	Running	The output is valid when any channel is in operation.
Q2	Stop	The output is valid when all channels are in a stopped state.
Q3	Slow stop	The output is valid when any channel is in the pause process.
Q4	Disc	The output is effective when any channel is in the unloading process.
Q5	Batch complete	The output is valid after the set batch number is completed.
Q6	Supply fill	Feed control output signal. When the signal is valid, start the feeding device to supply materials to the storage hopper.
Q7	starving	Output signal for material shortage status. When the "I12. Discharge Level" signal input is invalid, it is in a state of material shortage.
Q8	clamp	【3.1.1 Working Mode 】 Set to "① Interlock Mode" 【3.4.2 Unloading Start Condition 】 Set to "③ Wait for bag clamping" to take effect. The bag-clamping function outputs a signal to control the bag-clamping mechanism to clamp the bag.
Q9	Print Code	The coding function outputs signals to control the coding machine to perform coding.
Q10	warning	The output of the controller is valid when there

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		is an alarm on any channel.
Q11	Feed complete.	When the feeding signal of any channel is valid, the output of this signal is valid.
Q12	Disc complete	When the unloading signal of any channel is valid, the signal output is valid.
Q13	Logic 1	Logic Programming 1 Function output signal.
Q14	Logic 2	Logic Programming 2 Function output signal.
Q15	Logic 3	Logic Programming 3 Function output signal.
Q16	Logic 4	Logic Programming 4 Function output signal.
Q17	Logic 5	Logic Programming 5 Function output signal.
Q18	Logic 6	Logic Programming 6 Function output signal.
Q19	Logic 7	Logic Programming 7 Function output signal.
Q20	Logic 8	Logic Programming 8 Function output signal.
Q21	Logic 9	Logic Programming 9 Function output signal.
Q22	Logic 10	Logic Programming 10 Function output signal.
Q23	Logic 11	Logic Programming 11 Function output signal.
Q24	Logic 12	Logic Programming 12 Function output signal.
Function 1#		
Q1_1	1# Running	The output is valid when in operation.
Q1_2	1# Stop	The output is valid when in the stopped state.
Q1_3	1# slow stop	The output is valid during the pause process.
Q1_4	1# fast	Rapid feeding control signal.
Q1_5	1# med	Med feeding control signal.
Q1_6	1# slow	Slow feeding control signal.
Q1_7	1# hold	The output is valid when the feeding is completed. The duration can be set with the parameter [5.5.7 result hold time]. Record the result of this time after the time ends.
Q1_8	1# Ove/Und	The ove/Und function is ON. When an ove/Und alarm occurs in the feeding result, this output is valid.
Q1_9	1#warning	The output is effective when the controller has an alarm.

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Q1_10	1#Disc ON	Control the operation of the Disc mechanism.
Q1_11	1#Disc OFF	Control the operation of the Disc mechanism.
Q1_12	1#Disc	The output is valid during the Disc process.
Q1_13	1#analog 1 En	When the analog quantity 1 outputs the feeding signal, this output is valid.
Q1_14	1#analog 2 En	When the analog quantity 2 outputs the feeding signal, this output is valid.
Q1_15	1#feed complete	After the setting process is completed, if the signal output is valid, it indicates that the feeding has been finished and unloading can be carried out.
Q1_16	1#Disc complete	After unloading is completed, output this signal for 1 second and then turn it off.
Q1_17	1# Disc direction	When the stepper motor controls the unloading, this signal serves as the direction signal of the stepper motor driver.
Q1_18	1#clamp	The Clamp output signal to control the clamp BAG mechanism to clamp the bag.
Q1_19	1#print code	The Print coding function outputs signals to control the coding machine to perform coding.
Q1_20	1# replenished	This signal output is effective during the feeding process.
Q1_21	1#feed/Disc Timeout	This output is valid when the alarm for feeding or discharging exceeds the time limit
Q1_22	1#Disc Enable	When a stepper motor controls Disc, this signal serves as the enable signal for the stepper motor driver.
Function 2#		
Q2_1	2# Running	The output is valid when in operation.
Q2_2	2# Stop	The output is valid when in the stopped state.
Q2_3	2# slow stop	The output is valid during the pause process.
Q2_4	2# fast	Rapid feeding control signal.

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Q2_5	2# med	Med feeding control signal.
Q2_6	2# slow	Slow feeding control signal.
Q2_7	2# hold	The output is valid when the feeding is completed. The duration can be set with the parameter [5.5.7 result hold time]. Record the result of this time after the time ends.
Q2_8	2# Ove/Und	The ove/Und function is ON. When an ove/Und alarm occurs in the feeding result, this output is valid.
Q2_9	2#warning	The output is effective when the controller has an alarm.
Q2_10	2#Disc ON	Control the operation of the Disc mechanism.
Q2_11	2#Disc OFF	Control the operation of the Disc mechanism.
Q2_12	2#Disc	The output is valid during the Disc process.
Q2_13	2#analog 1 En	When the analog quantity 1 outputs the feeding signal, this output is valid.
Q2_14	2#analog 2 En	When the analog quantity 2 outputs the feeding signal, this output is valid.
Q2_15	2#feed complete	After the setting process is completed, if the signal output is valid, it indicates that the feeding has been finished and unloading can be carried out.
Q2_16	2#Disc complete	After unloading is completed, output this signal for 1 second and then turn it off.
Q2_17	2# Disc direction	When the stepper motor controls the unloading, this signal serves as the direction signal of the stepper motor driver.
Q2_18	2#clamp	The Clamp output signal to control the clamp BAG mechanism to clamp the bag.
Q2_19	2#print code	The Print coding function outputs signals to control the coding machine to perform coding.
Q2_20	2# replenished	This signal output is effective during the feeding process.
Q2_21	2#feed/Disc	This output is valid when the alarm for feeding or

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	Timeout	discharging exceeds the time limit
Q2_22	2#Disc Enable	When a stepper motor controls Disc, this signal serves as the enable signal for the stepper motor driver.
Function 3#		
Q3_1	3# Running	The output is valid when in operation.
Q3_2	3# Stop	The output is valid when in the stopped state.
Q3_3	3# slow stop	The output is valid during the pause process.
Q3_4	3# fast	Rapid feeding control signal.
Q3_5	3# med	Med feeding control signal.
Q3_6	3# slow	Slow feeding control signal.
Q3_7	3# hold	The output is valid when the feeding is completed. The duration can be set with the parameter [5.5.7 result hold time]. Record the result of this time after the time ends.
Q3_8	3# Ove/Und	The ove/Und function is ON. When an ove/Und alarm occurs in the feeding result, this output is valid.
Q3_9	3#warning	The output is effective when the controller has an alarm.
Q3_10	3#Disc ON	Control the operation of the Disc mechanism.
Q3_11	3#Disc OFF	Control the operation of the Disc mechanism.
Q3_12	3#Disc	The output is valid during the Disc process.
Q3_13	3#analog 1 En	When the analog quantity 1 outputs the feeding signal, this output is valid.
Q3_14	3#analog 2 En	When the analog quantity 2 outputs the feeding signal, this output is valid.
Q3_15	3#feed complete	After the setting process is completed, if the signal output is valid, it indicates that the feeding has been finished and unloading can be carried out.
Q3_16	3#Disc complete	After unloading is completed, output this signal for 1 second and then turn it off.

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Q3_17	3# Disc direction	When the stepper motor controls the unloading, this signal serves as the direction signal of the stepper motor driver.
Q3_18	3#clamp	The Clamp output signal to control the clamp BAG mechanism to clamp the bag.
Q3_19	3#print code	The Print coding function outputs signals to control the coding machine to perform coding.
Q3_20	3# replenished	This signal output is effective during the feeding process.
Q3_21	3#feed/Disc Timeout	This output is valid when the alarm for feeding or discharging exceeds the time limit
Q3_22	3#Disc Enable	When a stepper motor controls Disc, this signal serves as the enable signal for the stepper motor driver.
Function 4#		
Q4_1	4# Running	The output is valid when in operation.
Q4_2	4# Stop	The output is valid when in the stopped state.
Q4_3	4# slow stop	The output is valid during the pause process.
Q4_4	4# fast	Rapid feeding control signal.
Q4_5	4# med	Med feeding control signal.
Q4_6	4# slow	Slow feeding control signal.
Q4_7	4# hold	The output is valid when the feeding is completed. The duration can be set with the parameter [5.5.7 result hold time]. Record the result of this time after the time ends.
Q4_8	4# Ove/Und	The ove/Und function is ON. When an ove/Und alarm occurs in the feeding result, this output is valid.
Q4_9	4#warning	The output is effective when the controller has an alarm.
Q4_10	4#Disc ON	Control the operation of the Disc mechanism.
Q4_11	4#Disc OFF	Control the operation of the Disc mechanism.
Q4_12	4#Disc	The output is valid during the Disc process.

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Q4_13	4#analog 1 En	When the analog quantity 1 outputs the feeding signal, this output is valid.
Q4_14	4#analog 2 En	When the analog quantity 2 outputs the feeding signal, this output is valid.
Q4_15	4#feed complete	After the setting process is completed, if the signal output is valid, it indicates that the feeding has been finished and unloading can be carried out.
Q4_16	4#Disc complete	After unloading is completed, output this signal for 1 second and then turn it off.
Q4_17	4# Disc direction	When the stepper motor controls the unloading, this signal serves as the direction signal of the stepper motor driver.
Q4_18	4#clamp	The Clamp output signal to control the clamp BAG mechanism to clamp the bag.
Q4_19	4#print code	The Print coding function outputs signals to control the coding machine to perform coding.
Q4_20	4# replenished	This signal output is effective during the feeding process.
Q4_21	4#feed/Disc Timeout	This output is valid when the alarm for feeding or discharging exceeds the time limit
Q4_22	4#Disc Enable	When a stepper motor controls Disc, this signal serves as the enable signal for the stepper motor driver.
Function 5#		
Q5_1	5# Running	The output is valid when in operation.
Q5_2	5# Stop	The output is valid when in the stopped state.
Q5_3	5# slow stop	The output is valid during the pause process.
Q5_4	5# fast	Rapid feeding control signal.
Q5_5	5# med	Med feeding control signal.
Q5_6	5# slow	Slow feeding control signal.
Q5_7	5# hold	The output is valid when the feeding is completed. The duration can be set with the parameter [5.5.7

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		result hold time]. Record the result of this time after the time ends.
Q5_8	5# Ove/Und	The ove/Und function is ON. When an ove/Und alarm occurs in the feeding result, this output is valid.
Q5_9	5#warning	The output is effective when the controller has an alarm.
Q5_10	5#Disc ON	Control the operation of the Disc mechanism.
Q5_11	5#Disc OFF	Control the operation of the Disc mechanism.
Q5_12	5#Disc	The output is valid during the Disc process.
Q5_13	5#analog 1 En	When the analog quantity 1 outputs the feeding signal, this output is valid.
Q5_14	5#analog 2 En	When the analog quantity 2 outputs the feeding signal, this output is valid.
Q5_15	5#feed complete	After the setting process is completed, if the signal output is valid, it indicates that the feeding has been finished and unloading can be carried out.
Q5_16	5#Disc complete	After unloading is completed, output this signal for 1 second and then turn it off.
Q5_17	5# Disc direction	When the stepper motor controls the unloading, this signal serves as the direction signal of the stepper motor driver.
Q5_18	5#clamp	The Clamp output signal to control the clamp BAG mechanism to clamp the bag.
Q5_19	5#print code	The Print coding function outputs signals to control the coding machine to perform coding.
Q5_20	5# replenished	This signal output is effective during the feeding process.
Q5_21	5#feed/Disc Timeout	This output is valid when the alarm for feeding or discharging exceeds the time limit
Q5_22	5#Disc Enable	When a stepper motor controls Disc, this signal serves as the enable signal for the stepper motor driver.

Function 6#		
Q6_1	6# Running	The output is valid when in operation.
Q6_2	6# Stop	The output is valid when in the stopped state.
Q6_3	6# slow stop	The output is valid during the pause process.
Q6_4	6# fast	Rapid feeding control signal.
Q6_5	6# med	Med feeding control signal.
Q6_6	6# slow	Slow feeding control signal.
Q6_7	6# hold	The output is valid when the feeding is completed. The duration can be set with the parameter [5.5.7 result hold time]. Record the result of this time after the time ends.
Q6_8	6# Ove/Und	The ove/Und function is ON. When an ove/Und alarm occurs in the feeding result, this output is valid.
Q6_9	6#warning	The output is effective when the controller has an alarm.
Q6_10	6#Disc ON	Control the operation of the Disc mechanism.
Q6_11	6#Disc OFF	Control the operation of the Disc mechanism.
Q6_12	6#Disc	The output is valid during the Disc process.
Q6_13	6#analog 1 En	When the analog quantity 1 outputs the feeding signal, this output is valid.
Q6_14	6#analog 2 En	When the analog quantity 2 outputs the feeding signal, this output is valid.
Q6_15	6#feed complete	After the setting process is completed, if the signal output is valid, it indicates that the feeding has been finished and unloading can be carried out.
Q6_16	6#Disc complete	After unloading is completed, output this signal for 1 second and then turn it off.
Q6_17	6# Disc direction	When the stepper motor controls the unloading, this signal serves as the direction signal of the stepper motor driver.
Q6_18	6#clamp	The Clamp output signal to control the clamp BAG

		mechanism to clamp the bag.
Q6_19	6#print code	The Print coding function outputs signals to control the coding machine to perform coding.
Q6_20	6# replenished	This signal output is effective during the feeding process.
Q6_21	6#feed/Disc Timeout	This output is valid when the alarm for feeding or discharging exceeds the time limit
Q6_22	6#Disc Enable	When a stepper motor controls Disc, this signal serves as the enable signal for the stepper motor driver.
Group [1] Function		
Q[1]_1	G[1]Running	The output of Group [1] is valid when any channel is in operation.
Q[1]_2	G[1]Stop	The output of Group [1] is valid when all channels are in a stopped state.
Q[1]_3	G[1]slow stop	The output of Group [1] is valid when any channel is in the pause process.
Q[1]_4	G[1]Disc	In Group [1], the output is effective when any channel is in the Disc process.
Q[1]_5	G[1]clamp	【3.1.1 Working Mode】 Set to “③ Grouping Mode” 【3.4.2 Disc Start Condition】 Set to “③ clamp” to take effect. The clamping function output signal of the group [1] controls the clamp mechanism to clamp the bag.
Q[1]_6	G[1]Print code	The output signal of the print coding function in group [1] controls the coding machine to print coding.
Q[1]_7	G[1]warning	The output of the group [1] controller is valid when there is an alarm on any channel.
Q[1]_8	G[1]feed complete	When the feeding signal of any channel in Group [1] is valid, the output of this signal is valid.
Q[1]_9	G[1]Disc complete	When the Disc signal of any channel in Group [1] is valid, the signal output is valid.

Group [2] Function		
Q[2]_1	G[2]Running	The output of Group [2] is valid when any channel is in operation.
Q[2]_2	G[2]Stop	The output of Group [2] is valid when all channels are in a stopped state.
Q[2]_3	G[2] slow stop	The output of Group [2] is valid when any channel is in the pause process.
Q[2]_4	G[2]Disc	In Group [2], the output is effective when any channel is in the Disc process.
Q[2]_5	G[2]clamp	【3.1.1 Working Mode 】 Set to “③ Grouping Mode” 【3.4.2 Disc Start Condition 】 Set to “③ clamp” to take effect. The clamping function output signal of the group [2] controls the clamp mechanism to clamp the bag.
Q[2]_6	G[2]Print code	The output signal of the print coding function in group [2] controls the coding machine to print coding.
Q[2]_7	G[2]warning	The output of the group [2] controller is valid when there is an alarm on any channel.
Q[2]_8	G[2]feed complete	When the feeding signal of any channel in Group [2] is valid, the output of this signal is valid.
Q[2]_9	G[2]Disc complete	When the Disc signal of any channel in Group [2] is valid, the signal output is valid.

2.7.3.HO Setting

Define the functions corresponding to the H-speed pulse ports HO1 to HO9. The high-speed pulse port can be configured for high-speed pulse output or normal output function.

The relevant parameter Settings of the high-speed pulse port are as follows:

Serial number	Parameter	Explanation	Initial value
7.3	Definition of high-speed pulse Port (HO)		

7.3.1	H01		
7.3.1.1	H01 config	① High speed pulse ② Normal	① High-speed pulse
7.3.1.2	H01 Define	The list of high-speed pulse function options is 2.7.3.1 detailed. The list of common output function options is 2.7.2.1 detailed.	P1.1# Disc pulse
7.3.2	H02		
7.3.2.1	H02 config	① High speed pulse ② Normal	① High-speed pulse
7.3.2.2	H02 Define	The list of high-speed pulse function options is 2.7.3.1 detailed. The list of common output function options is 2.7.2.1 detailed.	P2.2# Disc pulse
7.3.3	H03		
7.3.3.1	H03 config	① High speed pulse ② Normal	① High-speed pulse
7.3.3.2	H03 Define	The list of high-speed pulse function options is 2.7.3.1 detailed. The list of common output function options is 2.7.2.1 detailed.	P3.3# Disc pulse
7.3.4	H04		
7.3.4.1	H04 config	① High speed pulse ② Normal	① High-speed pulse
7.3.4.2	H04 Define	The list of high-speed pulse function options is 2.7.3.1 detailed. The list of common output function options is 2.7.2.1 detailed.	P4.4# Disc pulse
7.3.5	H05		
7.3.5.1	H05 config	① High speed pulse ② Normal	① High-speed pulse
7.3.5.2	H05 Define	The list of high-speed pulse function options	P5.5# Disc

		is2.7.3.1detailed. The list of common output function options is2.7.2.1detailed.	pulse
7.3.6	H06		
7.3.6.1	H06 config	① High speed pulse ② Normal	① High-speed pulse
7.3.6.2	H06 Define	The list of high-speed pulse function options is2.7.3.1detailed. The list of common output function options is2.7.2.1detailed.	P6.6# Disc pulse
7.3.7	H07		
7.3.7.1	H07 config	① High speed pulse ② Normal	② Normal
7.3.7.2	H07 Define	The list of high-speed pulse function options is2.7.3.1detailed. The list of common output function options is2.7.2.1detailed.	Q5_15.5#Feed complete
7.3.8	H08		
7.3.8.1	H08 config	① High speed pulse ② Normal	② Normal
7.3.8.2	H08 Define	The list of high-speed pulse function options is2.7.3.1detailed. The list of common output function options is2.7.2.1detailed.	Q5_15.6#Feed complete
7.3.9	H09		
7.3.9.1	H09 config	① High speed pulse ② Normal	① High-speed pulse
7.3.9.2	H09 Define	The list of high-speed pulse function options is2.7.3.1detailed. The list of common output function options is2.7.2.1detailed.	P0. None

2.7.3.1. List of high-speed pulse port functions

Num	Function name	Description
P0	Undefined	No function definition.
P1	1# Disc pulse	Control the action of the Disc step motor in Channel 1.
P2	2# Disc pulse	Control the action of the Disc step motor in Channel 2.
P3	3# Disc pulse	Control the action of the Disc step motor in Channel 3.
P4	4# Disc pulse	Control the action of the Disc step motor in Channel 4.
P5	5# Disc pulse	Control the action of the Disc step motor in Channel 5.
P6	6# Disc pulse	Control the action of the Disc step motor in Channel 6.

2.7.4.M Setting

Define the functions corresponding to multiplexing ports M1 to M9. The multiplexing port can be configured as an input function or an output function.

The relevant parameter Settings for the input and output multiplexing ports are as follows:

num	Parameter	Explanation	Init value
7.4	Input/Output multiplexing port Definition (M)		
7.4.1	M1		
7.4.1.1	M1 config	① Output ② Input	② Input
7.4.1.2	M1 Define	The list of output function options can be found in 2.7.2.1 detail. For the list of input function options, please refer to 2.7.1.1 it.	I1_9.1# Manual Disc
7.4.2	M2		
7.4.2.1	M2 config	① Output ② Input	② Input
7.4.2.2	M2 Define	The list of output function options can be found in 2.7.2.1 detail. For the list of input function options, please refer to 2.7.1.1 it.	I1_9.2# Manual Disc
7.4.3	M3		
7.4.3.1	M3 config	① Output ② Input	② Input

7.4.3.2	M3 Define	The list of output function options can be found in2.7.2.1detail. For the list of input function options, please refer to2.7.1.1it.	I1_9.3# Manual Disc
7.4.4	M4		
7.4.4.1	M4 config	① Output ② Input	② Input
7.4.4.2	M4 Define	The list of output function options can be found in2.7.2.1detail. For the list of input function options, please refer to2.7.1.1it.	I1_9.4# Manual Disc
7.4.5	M5		
7.4.5.1	M5 config	① Output ② Input	② Input
7.4.5.2	M5 Define	The list of output function options can be found in2.7.2.1detail. For the list of input function options, please refer to2.7.1.1it.	I1_9.5# Manual Disc
7.4.6	M6		
7.4.6.1	M6 config	① Output ② Input	② Input
7.4.6.2	M6 Define	The list of output function options can be found in2.7.2.1detail. For the list of input function options, please refer to2.7.1.1it.	I1_9.6# Manual Disc

2.7.5.IO Test

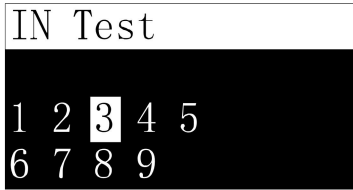
Switch quantity testing is used to test whether the switch quantity function is normal and is divided into "input testing (IN)", "output testing (OUT)", "high-speed pulse port (H0)" and "multiplexing port (M)". You can switchⒾ between the above four interfaces by pressing the buttons.

2.7.5.1. Input Test(IN)

The "Input Test (IN)" interface is shown as follows:

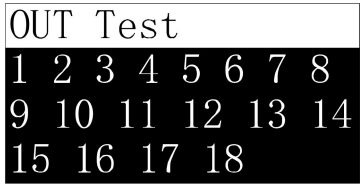


The numbers 1 to 9 represent IN1 to IN9 input ports. When the input is valid, the corresponding ports are displayed in reverse. For example, when IN3 input is valid, it is displayed as shown in the following figure:



2. 7. 5. 2. **Output test(OUT)**

The "Output Test (OUT)" interface is shown as follows:



The numbers 1~18 represent the output ports of OUT1~OUT18. If the number 1 flashes, it  indicates that pressing can manually switch the on and off of OUT1 output, and  pressing will switch to other OUT ports. When the OUT output is enabled, the corresponding port number is displayed in reverse. For example, when the OUT2 output is enabled, it is displayed as shown in the following figure:

OUT Test							
1	2	3	4	5	6	7	8
9	10	11	12	13	14		
15	16	17	18				

2.7.5.3. High-speed pulse port (H0)

The operation of the "High-Speed Pulse Port (H0)" test function is the same as that of the "Output Test (OUT)", and the interface is shown in the following figure:

H0 Test				
1	2	3	4	5
6	7	8	9	

The numbers 1~9 represent the H01~H09 output ports. If the number 1 flashes, it indicates  that pressing can manually switch the on and off of the H01 output, and  pressing will switch to other HO ports. When the HO output is enabled, the corresponding port number is displayed in reverse on the scale. For example, when the H02 output is enabled, it is displayed as shown in the following figure:

H0 Test				
1	2	3	4	5
6	7	8	9	

Note: The output test of the high-speed pulse port outputs the level signal of a common switch quantity, not a pulse signal.

2.7.5.4. Multiplexing port (M)

The "Multiplexing Port (M)" test interface is shown in the

following figure:



The ports configured for input functions will be displayed after the input title.

The ports configured for output function will be displayed after the output title.

As shown in the above figure, M1,M2, and M3 are configured as input ports, while M4, M5, and M6 are configured as output ports.

The test operation method for the multiplexed port (M) is the same as the ordinary "input test (IN)" and "output test (OUT)" operation methods, and will not be described here.

2.8. Analog quantity

Set the range of the analog output of the controller and perform related operations for analog calibration and calibration.

2.8.1. Analog range

Set the minimum and maximum values of the analog output.

number	Parameter	Explanation	Init value
8.1	Analog output range		
8.1.1	Analog Min	0.000~5.000V; The min value of the analog output.	0.000
8.1.2	Analog Max	0.000~5.000V; The max value of the analog output.	5.000

2.8.2. Analog calib

The calibration operation of analog quantities: When there is a deviation between the output value of the analog quantity and the actual value, the analog quantity calibration function can be used to calibrate the output of the analog quantity.

The following takes the calibration of the analog quantity U1-1 as an example to illustrate the operation method of analog quantity calibration.

Analog quantity calibration method

- (1) Enter the [8.2.1 U1-1 Calibration] interface.
- (2) Enter the [8.2.1.1 [0V]] option interface. At this point, use a multimeter to measure the voltage magnitude of the analog quantity U1-1 output (normally it should be around 0V), input the measured value into the interface and press Confirm.
- (3) Enter the [8.2.1.2 [2.5V]] option interface. At this point, use a multimeter to measure the voltage output of the analog quantity U1-1 (normally it should be around 2.5V), input the measured value into the interface and press Confirm.
- (4) Enter the [8.2.1.3 [5V]] option interface. At this point, use a multimeter to measure the voltage output of the analog quantity U1-1 (normally it should be around 5V), input the measured value into the interface and press Confirm.
- (5) Enter the [8.2.1.4 Maximum Voltage] option interface. At this point, use a multimeter to measure the voltage output of the analog quantity U1-1 (normally it should be above 5V), input the measured value into the interface and press Confirm.
- (6) After the above operations, the calibration operation of the analog quantity U1-1 can be completed.

When measuring the output voltage of U1-1, please ensure that the multimeter is in the DC voltage range. Connect the positive test lead to the output port of the U1-1 terminal of the controller and the negative test lead to the output port of the GND terminal of the controller.

number	Parameter	Explanation	Init value
8.2.1	U1-1 calibration		
8.2.1.1	0V Set	-1.000~5.000V; Analog output 0V calibration point.	0.000
8.2.1.2	2.5 Set	-1.000~ 15.000V; Analog output 2.5V calibration point.	2.500
8.2.1.3	5V Set	-1.000~ 15.000V; Analog output 5V calibration point.	5.000
8.2.1.4	Max Set	-1.000~15.000V; Max voltage calibration point for analog output.	5.200

The calibration operations for other analog quantities are the same as those in U1-1. For specific operation instructions, please refer to the analog quantity calibration instructions in U1-1.

2.8.3. Analog Testing

The analog quantity test function enables control of the corresponding analog quantity value output from the analog quantity port by inputting numerical values, which can be used to test whether the analog quantity output is normal.

Serial number	Parameter	Explanation	Initial value
8.3	Analog quantity testing		
8.3.1	U1-1 test	0.000~5.000V; The input value can control the output size of the analog quantity U1-1.	0.000
8.3.2	U1-2 test	0.000~5.000V; The input value can control the output size of the analog quantity U1-2.	0.000
8.3.3	U2-1 test	0.000 ~5.000V; The input value can control the output size of the analog quantity U2-1.	0.000
8.3.4	U2-2 test	0.000~5.000V; The input value can control the output size of the analog quantity U2-2.	0.000
8.3.5	U3-1 test	0.000 ~5.000V; The input value can control the output size of the analog quantity U3-1.	0.000
8.3.6	U3-2test	0.000~5.000V; The input value can control the output size of the analog quantity U3-2.	0.000
8.3.7	U4-1 test	0.000 ~5.000V; The input value can control the output size of the analog quantity U4-1.	0.000
8.3.8	U4-2 test	0.000~5.000V; The input value can control the output size of the analog quantity U4-2.	0.000
8.3.9	U5-1 test	0.000 ~5.000V; The input value can control the output size of the analog quantity U5-1.	0.000
8.3.10	U5-2 test	0.000~5.000V; The input value can control the output size of the analog quantity U5-2.	0.000
8.3.11	U6-1 test	0.000 ~5.000V; The input value can control the output size of the analog quantity U6-1.	0.000
8.3.12	U6-2 test	0.000~5.000V; The input value can control the output size of the analog quantity U6-2.	0.000

2.9.ACC data

Cumulative viewing and clearing, as well as the setting of batch counts.

number	Parameter	Explanation	Init value
9.1	Batch and Cumulative		
9.1.1	Batch set	0-9999,Set the preset batch count. Once the set batch count is accumulated, the controller will alarm to indicate that the batch is completed and stop the machine.	0
9.1.2	Completed	Check the number of completed batches	
9.1.3	Batch End alarm	① OFF /② ON Whether there is an alarm prompt after the batch setting is completed.	② ON
9.1.4	Batch End alarm time	0~60,000ms; The output time of the batch completion alarm is set. The alarm will be automatically cleared when the time is up. When set to 0, the batch completion alarm will be continuously output and can only be manually cleared.	0ms
9.1.5	Total num/Wt	Display the total cumulative number of packages and the total cumulative weight.	
9.1.6	1# Cumulative	Display the cumulative package count and cumulative weight of Channel 1#~6#	
9.1.6	1# Cumulative		
9.1.7	2# Cumulative		
9.1.8	3# Cumulative		
9.1.9	4# Cumulative		
9.1.10	5# Cumulative		
9.1.11	6# Cumulative		
9.2	Formula accumulation		
9.2.1	Formula 1		
9.2.1	Formula 1		

9.2.2	Formula 2	Display the cumulative number of packs and cumulative weight of Formula 1~20	
9.2.3	Formula 3		
9.2.4	Formula 4		
9.2.5	Formula 5		
9.2.6	Formula 6		
9.2.7	Formula 7		
9.2.8	Formula 8		
9.2.9	Formula 9		
9.2.10	Formula 10		
9.2.11	Formula 11		
9.2.12	Formula 12		
9.2.13	Formula 13		
9.2.14	Formula 14		
9.2.15	Formula 15		
9.2.16	Formula 16		
9.2.17	Formula 17		
9.2.18	Formula 18		
9.2.19	Formula 19		
9.2.20	Formula 20		

2.10. Comm Setting

2.10.1. Serial Port 1 Settings

Serial Port 1 is the standard RS485 communication serial port for the controller. For the wiring ports, please refer 1.3 to the section. The relevant parameters are as follows:

num	parameter	explain	starter
10.1	Serial Port 1 setting		
10.1.1	Slave ID	Set the communication address of the device (slave station number).	1
10.1.2	protocol	① [Modbus-RTU-H] :	① MODBUS-RTU-H

		two-word data high word first. ②[Modbus-RTU-L]: two-word data low word first.	
10.1.3	Baud rate	Set the baud rate for the serial port communication ①4800 ②9600 ③19200 ④38400 ⑤57600	④38400
10.1.4	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	③8-N-1

2.10.2. Serial Port2 Settings

Serial Port 2 is the standard RS485 communication serial port for the controller. For wiring ports, please refer to1.3the section. For relevant parameter Settings, you can refer to Serial Port 1.

2.11. Password

Each item in the main menu interface and menu can be set with a separate password and password switch.

By default, all factory passwords are: 000000.

You need to enter the password twice when changing it.

number	Parameter	Explanation	Init value
--------	-----------	-------------	------------

AMC401-6K_Multi-channel Small Package Controller

11.1	Main menu		
11.1.1	PW switch	① OFF② ON	②ON
11.1.2	PW Set		
11.2	Calibration		
11.2.1	PW switch	① OFF② ON	②OFF
11.2.2	PW Set		
11.3	Weighing Para		
11.3.1	PW switch	① OFF② ON	②OFF
11.3.2	PW Set		
11.4	Ctrl Para		
11.4.1	PW switch	① OFF② ON	②OFF
11.4.2	PW Set		
11.5	Step Motor		
11.5.1	PW switch	① OFF② ON	②OFF
11.5.2	PW Set		
11.6	Recipe setting		
11.6.1	PW switch	① OFF② ON	②OFF
11.6.2	PW Set		
11.7	AI Packing		
11.7.1	PW switch	① OFF② ON	②OFF
11.7.2	PW Set		
11.8	IO		
11.8.1	PW switch	① OFF② ON	②OFF
11.8.2	PW Set		
11.9	Analog		
11.9.1	PW switch	① OFF② ON	②OFF
11.9.2	PW Set		
11.10	Acc Data		
11.10.1	PW switch	① OFF② ON	②OFF
11.10.2	PW Set		

11.11	Comm setting		
11.11.1	PW switch	① OFF② ON	②OFF
11.11.2	PW Set		
11.12	Password		
11.12.1	PW switch	① OFF② ON	②ON
11.12.2	PW Set		
11.13	Logic		
11.13.1	PW switch	① OFF② ON	②OFF
11.13.2	PW Set		
11.14	System		
11.14.1	PW switch	① OFF② ON	②OFF
11.14.2	PW Set		

2.12. Logic programming

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:

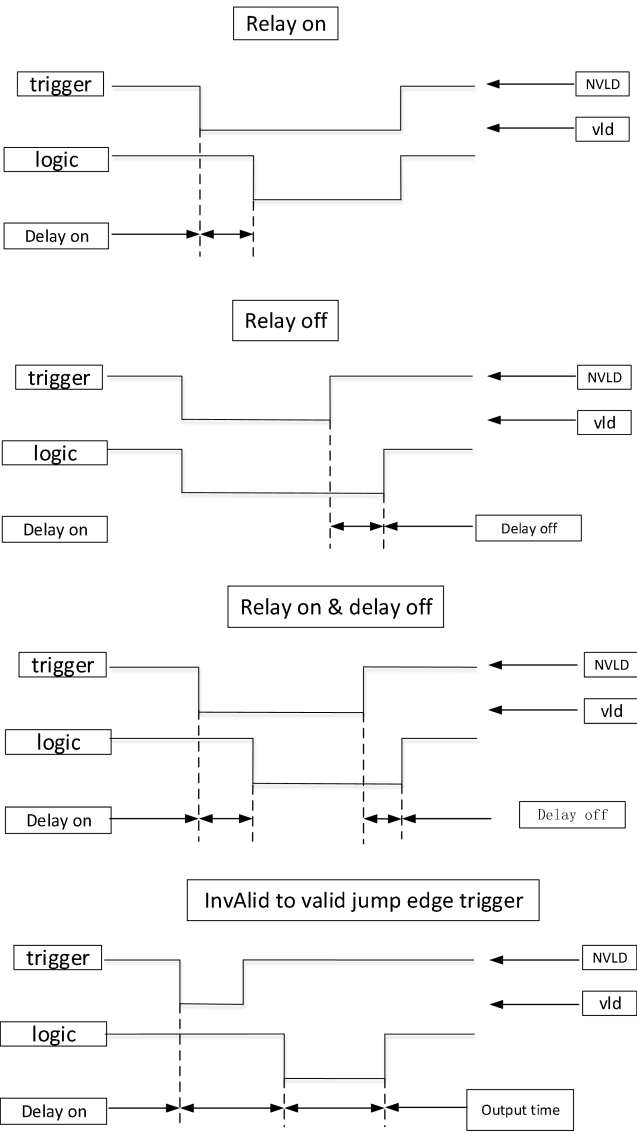
num	parameter	explain	starter
12.1	Logic 1		
12.1.1	logic type	Select the type of the logic programming. ① [close]: Turn off the logical output function. ② [Delay on] ③ [Delay off] ④ [delay on and off] ⑤ [OFF-ON Edge] ⑥ [ON-OFF Edge] ⑦[self Hold]	①[close]

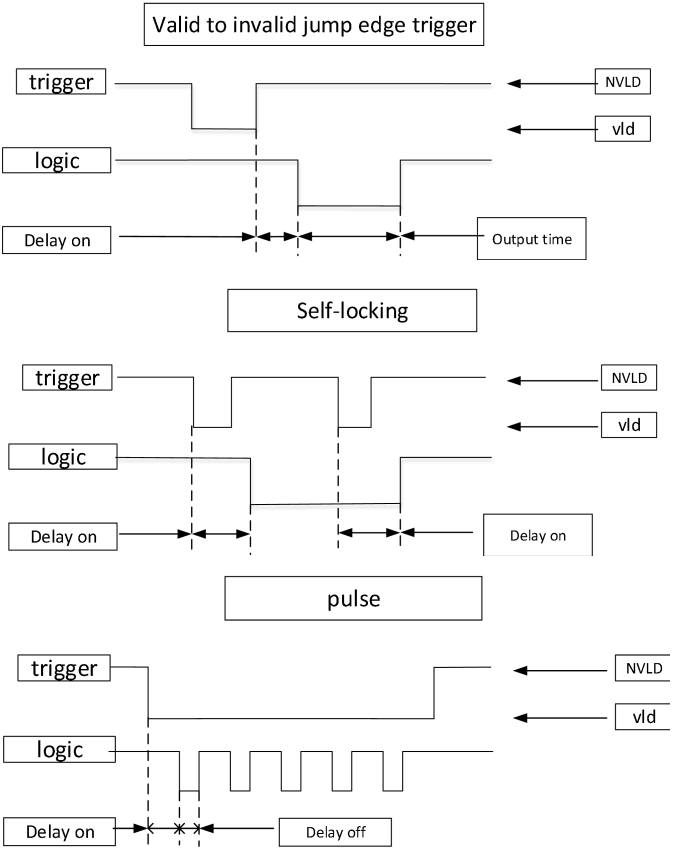
		⑧[pulse] See Section 2.12.1	
12.1.2	Trig type	① [Signal trigger]: The logical output is triggered by a certain signal. ② [Conditional trigger]: a logic output is triggered by reaching a condition. ③ [Comm trigger]: The logical output is triggered by the communication command.	① [Signal trigger]
12.1.3	Sig output	Select the logical output signal to define to an OUT output port.	NONE
12.1.4	ON Time	Time when the logical output signal is switched on.	0.0
12.1.5	off Time	The time of the logical output signal delay disconnection.	0.0
12.1.6	Signal 1	Select the signal 1 used to trigger the logic output.	None
12.1.7	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]
12.1.8	output time	[12.1.1 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	0.0

		the time to end. When this time is set to 0, the logical output signal will only end by the reset signal.	
12.1.9	Init signal	[12.1.1 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
12.1.10	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]
12.1.11	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]
12.1.12	value 1	Used to set the weight value for the corresponding trigger condition.	0
12.1.13	value 2		0
12.1.14	need state	2. [On]: After the weight meets the trigger condition and requires stability to trigger the logical output. 1. [Off]: The logical output can be triggered after the weight meets the trigger condition, without stability.	1. [OFF]
12.1.15	signal 2	Select the signal 2 used to trigger the logical output.	None
12.1.16	Wt Choose	1# Weight/2# Weight/3# Weight/4# Weight/5# Weight/6# Weight Select which scale weight setpoint to	1# Weight

		trigger.	
--	--	----------	--

2.12.1. Logic output timing diagram





2.12.2. 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:

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

[12.1.4 Delayed connection]: 1s

[12.1.8 Output time]: 2s

[12.1.2 Trigger type]: Signal trigger

[12.1.6 Signal 1 setting]: pouch
[12.1.3 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.

[12.1.1 Logic type]: delay connection
[12.1.4 On time]: 0s
[12.1.2 Trigger type]: conditional trigger
[12.1.11 condition]: Weight is greater than the set point
[12.1.12 value 1]: 100kg
[12.1.3 Sig output]: OUT10

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

[12.2.1 Logic type]: Invalid-valid jump edge trigger
[12.2.4 On time]: 2s
[12.2.8 Output time]: 3s
[12.2.2 Trigger type]: Signal trigger
[12.2.6 Signal 1]: Logic output 1
[12.2.3 Sig output]: OUT11

2.13 System

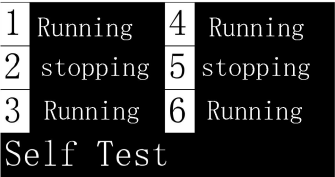
number	Parameter	Explanation	Init value
13.1	Para. Reset	Reset the controller parameters	

13.2	Backup& recovery	It can back up the current controller parameters and restore the backed-up parameters.	
13.3	language	①Chinese /② English	①Chinese
13.4	Boot Screen	①OFF: The company Logo is not displayed when the device is turned on. ②ON: The company Logo is displayed upon startup. ③Custom: Display the imported customized images upon startup.	② ON
13.5	screen-off time	0~600s; When set to 0, the automatic screen-off function is turned off.	0s
13.6	About	Check the model and version number of the controller.	

Note: When resetting all parameters, the analog parameters will not be reset. If you need to reset the analog parameters, you must perform the reset operation of the analog parameters separately.

2.14 Self-check

After entering the self-check page, the device will automatically start to perform the self-check operation. In the self-check state, the equipment simulates the packaging process according to the normal process Settings. Its switch quantity, analog quantity, and unloading step functions will all operate according to the set contents. During self-checking, it will not determine whether there is bag clamping or unloading. It will automatically execute and run in a loop to simulate the packaging process.

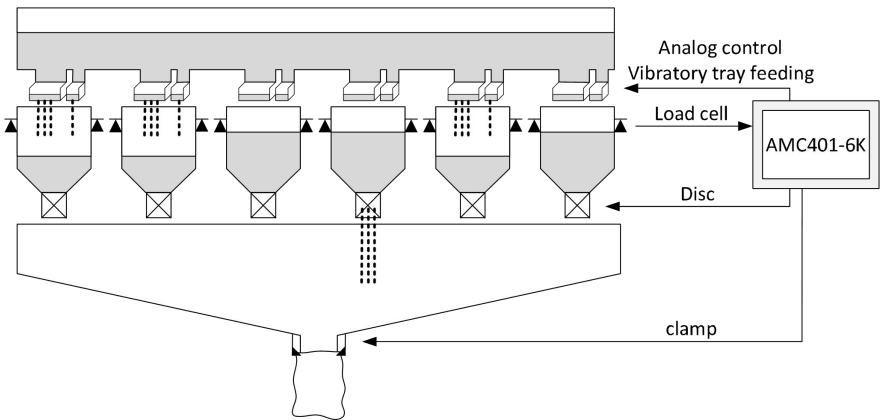


Under this interface, the following operations can be performed by pressing the keys:

Key press	
	Clicking this button allows you to exit the self-check and return to the previous menu. 2. Long press this key to exit the self-check and return to the main interface.
	Clicking this button can clear the current quotation status.
	Clicking this button can control the start and stop of the self-check.

III. Packaging process

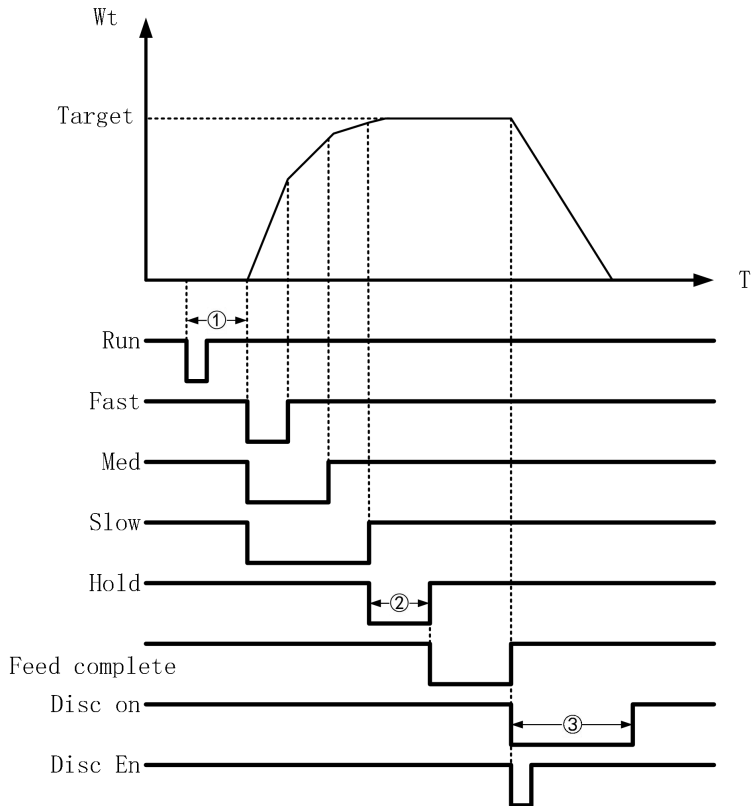
3.1. Equipment structure diagram



As shown in the above figure, it is a typical interlock mode structure diagram. The controller controls the feeding of six channels. After the bag clamping mechanism at the bottom completes the bag clamping each time, the controller will internally perform the unloading interlock sequence and control the channel that completed the feeding first to unload.

3.2. Main process sequence diagram

Taking Channel 1 as an example below, the main signal output timing and weight change trend after the packaging process is initiated are introduced as shown in the following figure:



Note

All the signals in the picture are valid at low levels.

The sequence diagrams of the fast, med and slow input signals in the figure are the sequence diagrams under the condition that the "3.2.2 Switch Quantity Feeding Signal Output Mode" is set to "① Combination".

The unloading signal timing diagram in the figure is the timing diagram under the condition that the [3.4.3 Unloading End Condition] is set to "① Time judgment".

The numbers in the figure represent the following contents:

- ① : [3.2.4 Delay before adding materials].
- ② : [5.5.7 Fixed value holding time].
- ③ : [5.5.8 Unloading holding Time].

3.3. Process description

1. Start running.
2. **【3.2.4 Delay before Feed】** Start feeding after the time ends. fast, med and slow input signals and analog signals .
3. When the weight value $\geq$ the target value - the lead amount for the fast feed, close the fast and enter the med.
4. When the weight value $\geq$ the target value - the lead amount of the med feed, turn off the med output and enter the slow output.
5. When the weight value $\geq$ the target value - slow feed, close the slow, end the feeding process, and start the [5.5.7result holding time].
6. **【5.5.7 result holding time】** After the time ends, record the weight of this feeding result and determine whether to conduct over-limit and under-limit detection based on the control parameter Settings.
7. After the setting is completed, output the "Q11 feed Complete" signal and wait for the external input of the "Disc En" signal.
8. After the external input of the "I14Disc En", the disc process is initiated.
9. After disc is completed, start [3.4.6 Rerun delay].
10. After the "3.4.6 rerun Delay" ends, based on the Settings of the "3.4.5 Rerun Conditions", it is determined that the restart conditions are met, and then the next feeding process cycle begins.

Note

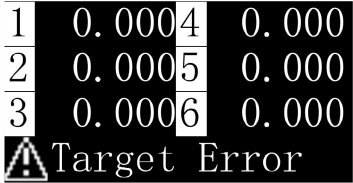
① : Based on the Settings in [5.2feed speed] and [3.2.1 Feed Signal Set], determine whether to output fast, med and slow feeding switch or analog signals.

② : According to the Settings in [3.4.2 Disc Start Conditions], you can choose to wait for the "I7 Disc En" signal to effectively unload, or unload directly without waiting for the allow Disc signal, or wait until the bag clamping is completed before Disc.

③ : For the specific functions of the unloading process, please refer 2.3.4.1 to the description in the chapter.

IV. Alarm information

When the controller triggers an alarm, it will display the alarm information in the bottom line, as shown in the following figure:



Pressing  the button or entering the "Clear Alarm" signal can clear the alarm.

For detailed instructions on specific alarms, please refer to the table below

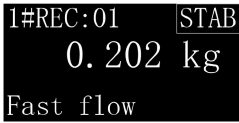
num	"Content"	Explanation
1	 target Error	The recipe parameter [target] cannot be started if it is not set. The target value must be set before it can be started.
2	 OFL cannot run	It cannot be started when the weight overflows.
3	 over zero range	When performing the zeroing operation, if the weight exceeds the zeroing range, it cannot be zeroed. The parameter Settings of "2.1.1 zero Range" can be adjusted.
4	 motion zeroing	During the zeroing operation, the weight is unstable and cannot be zeroed. It is necessary to investigate the cause of the unstable weight jump and whether it is due to mechanical vibration. The determination of stability conditions can also be adjusted by modifying the "2.2.1 Stable Range" and the "2.2.2 Stable Time".
5	 OFL zeroing	When the weight overflows, it cannot be reset to zero.
6	 Run zeroing	Manual zeroing operation is not allowed during the running state.
7	 Ove/und alarm	The controller enabled the "3.3.4 3.3.4 Over/Under Func ", and the feeding connection result showed an over-limit and under-limit situation.

8	 Ove/und Pause	The controller enabled the "3.3.4 Over/Under Func" function and the "3.3.6 Over/Under Pause" function. However, when the feeding result showed an over/under situation, the controller paused and waited for the user to handle it.
9	 Batch completed	When [9.1.1 Batch Settings] is set and the set number of batches has been completed, an alarm will be triggered.
10	 The stop signal is valid	When starting up, if the "Stop" signal is detected to be in an effective state, it cannot be started and an alarm prompt will be given.
11	 Switch quantity test status	The controller is in the switch quantity test state and cannot be started. The switch quantity test state needs to be turned off before starting.
12	 Not stable when clb	When performing the quick zero point calibration operation, the weight must be stable for the calibration to be successful; otherwise, an alarm will be triggered.
13	 Disc close timeout	When the motor unloading door closes [3.4.8Disc close timeout], if the "unloading door closed in place" signal input is still not detected as valid after the time limit is reached, it is considered that the unloading door has closed for a time limit and an alarm prompt will be issued.
14	 Al pack error	When self-learning the slow drop value, an error occurred and no material fell. Please check whether the feeding mechanism is normal.
15	 The Disc interlock buffer is full	An error occurred in the unloading interlock cache.
16	 The interlock channel for disc is incorrect	An error occurred in the handling of the unloading interlock channel.
17	 It cannot be started during calibration	It is not allowed to start when in the calibration state.
18	 feed timeout	The feeding time exceeded the set [3.7.1 Feeding timeout].

	Alarm	For detailed function descriptions, please refer to the corresponding parameters.
19	 Disc timeout alarm	The unloading time exceeded the set [3.7.4 disc timeout]. For detailed function descriptions, please refer to the corresponding parameters.
20	 Reset timeout alarm	The zeroing waiting time before feeding exceeded the set [3.7.7 auto zero timeout]. For detailed function descriptions, please refer to the corresponding parameters.
21	 The disc door is not fully closed	【3.7.10 check Disc Close】 When the function is turned on, if the signal "Unloading door closed in place" is invalid before feeding, an alarm will be triggered. For detailed functional descriptions, please refer to the corresponding parameters.

V. Troubleshooting Common Faults

When the controller is in operation, the  single-channel display interface 1# to 6# can be switched by pressing a key. When the single-channel interface is in operation, the bottom line of the display will provide real-time prompts on the current function and process being executed by the controller. Through this prompt, the current operation process of the controller can be determined, which helps to troubleshoot. As shown in the following figure, the controller is in the rapid feeding process:



Some possible faults that the controller may encounter during use and their troubleshooting methods are shown 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 capacity] set value. If the empty scale shows the OFL, please check: 1. [1.4 capacity] Is it set correctly. 2. Calibration is abnormal, re-calibrate. 3. Whether the sensor is damaged.
3	The static state weight of the device is abnormal and unstable	1. Whether the sensor line connection is correct and reliable, and whether the line is rusty and oxidized. 2. Whether the weighing mechanism is affected by external force or vibration. 3. Whether the sensor is damaged.

		4. The sensor or controller is disturbed by the electrical equipment around the site, such as the motor, frequency converter, etc. 5. [Filter] Whether the setting is appropriate.
4	Unable to start	1. 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). 2. Whether the input port of starting signal access is correctly defined as startup.
5	The result of feeding is not allowed	1. The results displayed by the controller after the feeding are inaccurate: (1) Adjust the setting of fast and med investment advance amount of formula parameters. Ensure that the slow casting process has a long enough time to ensure the accuracy. (2) Whether the feeding mechanism is normal, whether the following material outlet is blocked, and whether the material flow is smooth. 2. 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 [5.57 result hold time] 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.