

AMC501-G
Filling controller
manual

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

This product carries out the standard:

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

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

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



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1. Basic Information

1.1. Characteristics and specifications

AMC501-G Filling Controller is a weighing and control instrument specially developed for liquid filling scales, based on Chinese touch screen. AMC501-G adopts a high brightness color TFT touch screen display, supports Chinese input and Chinese display, has a beautiful graphical interface, and has a reasonable function classification and layout. All these excellent features make AMC501-G very easy to use.

The AMC501-G Filling Controller has the following basic features:

- TFT high brightness color touch screen, Chinese and English input and display
- Weighing channel: single channel
- Operating voltage: DC24V
- Sensor: DC5V/4-wire or 6-wire compatible
- Switching: 7 inputs/12 outputs
- Installation: cabinet (tray)
- Volume: 203 x 149 x 50 (L*W*H, mm)

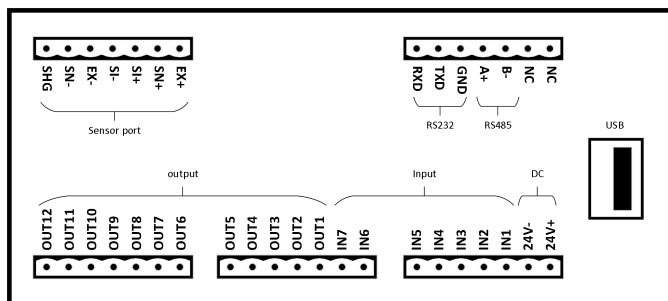
The detailed technical specifications are as follows:

Transducer Excitation	DC5V±10%/120mA Drive current/can receive eight Ω 350 specifications of the sensor
Adaptive Sensor Sensitivity	2mV/V or 3mV/V
Input Signal Range	0~15mV
Minimum Input Sensitivity	0.5uV/d
Nonlinearity	0.02%FS (3mV/V hour)
Zero Drift	<0.5 μ V/°C
Gain Drifting	<10PPM/°C
AD Rate	960Times/Seconds
Maximum Accuracy of Display	1/100000
Product Accuracy Grade	III
Working Voltage	DC24V (18V~30V compatibility)
Product Power Consumption	<5W
<u>Operating Temperature Range</u>	-10°C~45°C
Storage Temperature	-20°C~60°C

Humidity	Within 90%RH (No Condensation)
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1.2. Connection Port

The connection Port is shown:

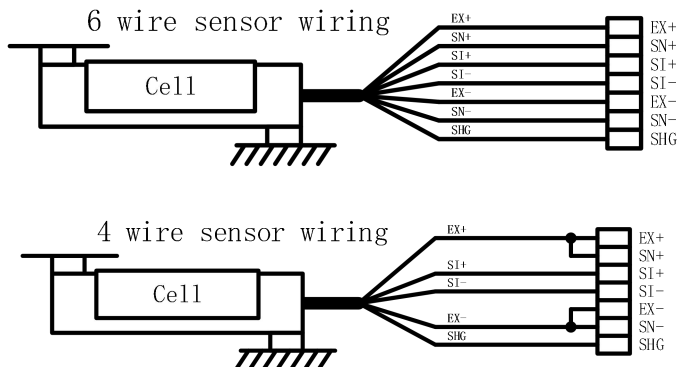


interface	instructions	interfa	instructions
24V+	DC24V +	24V-	DC24-
IO Input			
IN1	IN1. running	IN5	I7. Change Rec.
IN2	IN2. stop	IN6	I8. Pipe Drop/Rise
IN3	I5. zeroing	IN7	I14. Start filling
IN4	I6. clear alarm		
IO Output			
OUT1	Q1.run	OUT7	Q7.ove/und
OUT2	Q2.Stop	OUT8	Q8.warning
OUT3	Q3.Fast	OUT9	Q9. Bucket Move
OUT4	Q4.med	OUT10	Q10.Pipe Drop(Air drive)
OUT5	Q5.slow	OUT11	Q11.Batch complete
OUT6	Q6.Hold	OUT12	Q14. pause
Sensor interface			
EX+	Load Cell Excitation+	SI+	Load Cell Signal+

EX-	Load Cell Excitation-	SI-	Load Cell Signal-
SN+	Load Cell Sense+	SHG	Load Cell Shielded
SN-	Load Cell Sense-		

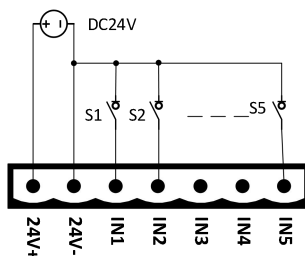
Note: The serial port RS232/RS485 is optional.

1.2.1. Sensor wiring method



1.2.2. IO wiring and definition

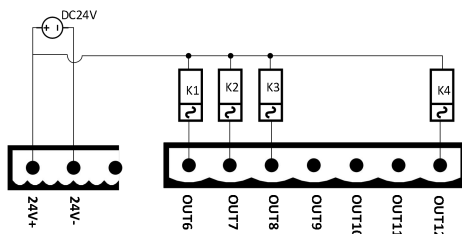
Schematic diagram of IO, For example, IN1, IN2, and IN5 are shown as follows:



The external circuit drive input switching quantity should meet two points, as follows:

1. The external circuit must be co-located with the controller;
2. When the input power of the external circuit is low, the input is valid; otherwise, the input is invalid.

The wiring diagram of the output switch quantity is as follows (OUT6, OUT7, OUT8, and OUT12 are used as examples) :



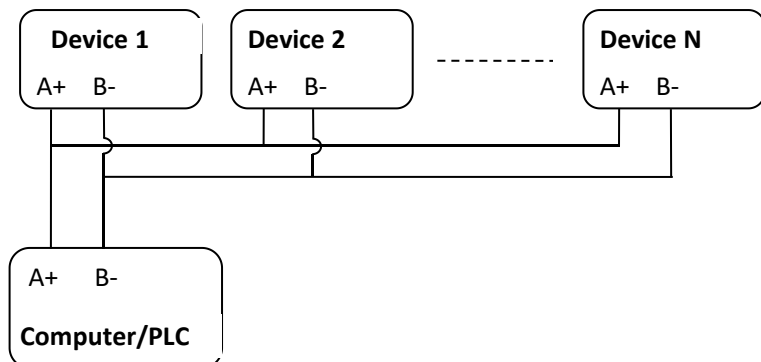
The external circuit driven by output switching quantity should meet two main points:

1. The external circuit should be co-located with the controller;
2. Low level when switching quantity output is active.

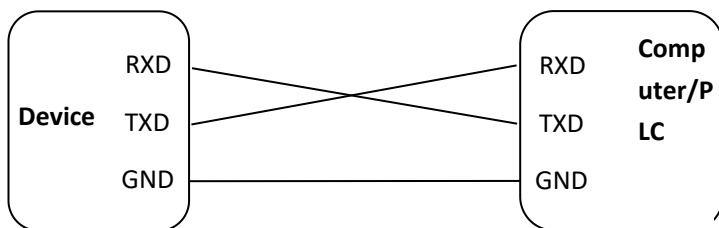
Note: the maximum driving capacity of each switch output is 500mA. Please pay attention to the power of the load when connecting the load. If the power exceeds the driving capacity of the output, the switch output may be damaged.

1.2.3. Serial Port Wiring Method

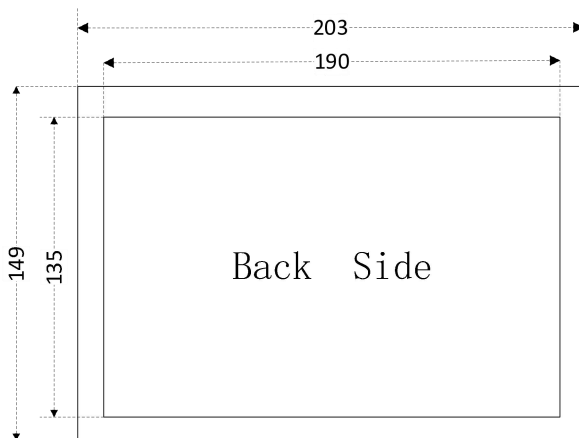
RS485 Wiring Diagram:



RS232 Wiring Diagram:



1.3. Mounting Dimension

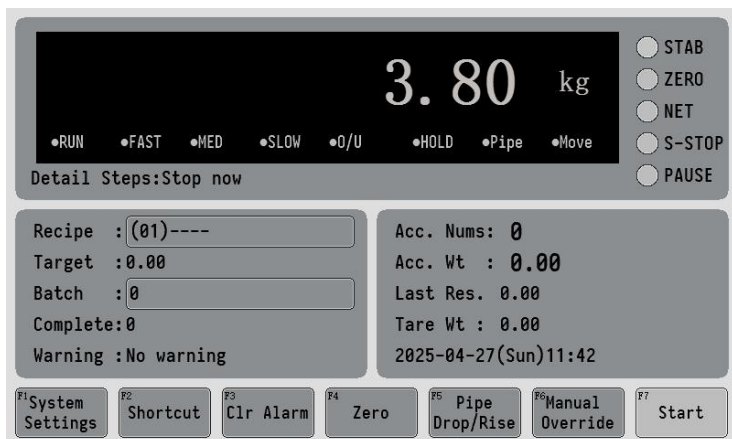


The image above is the bottom view of the product, data unit: mm

Recommended installation hole size: 192mm×138mm

2. main interface

Once the power-up and startup is complete, you will enter the main interface, which is shown in the following figure:



The top column displays the current weight value, the weight stabilization, zero, net, slow stop and pause status flags, and the detailed operating steps the controller is in.

The two middle columns are displayed as described below:

[Recipe] Displays the currently selected recipe number and name. Click to select the recipe.

[Target] the target weight of the current recipe.

[Batch] The quantity to be filled, the controller will stop automatically after completing the set batch.

[Completed] The number of batches that have been completed.

[Acc.num] The total number of times the filling has been completed.

[Acc.Wt] The total weight of the completed filling.

Note: You can clear the accumulated data by clicking the location where the accumulated data is displayed.

[Last Res] The weight result of the last filling.

[Tare Wt] The actual tare weight value of the current filling process.

The bottom column contains function buttons for partial parameter setting and operation.

F1 System Maintenance: Enter the main interface of controller system maintenance.

F2 Shortcut: Enter the shortcut settings interface.

F3 Clr Alarm: When there is an alarm, click the button to clear the alarm.

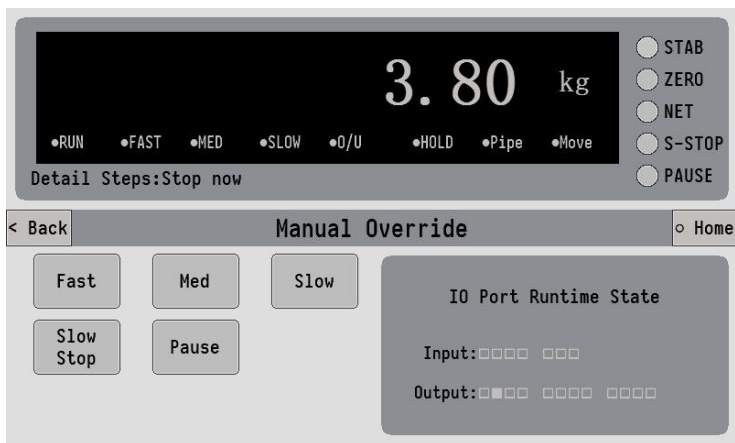
F4 Zero: performs a zero operation on the current weight. When the key is grayed out, it means that it is not available. For example, it is grayed out when it is running.

F5 Pipe Drop/Rise: Click to manually control the gun down and gun up action (need to enable [3.2.1 Gun Down Function Setting]).

F6 Manual Override: open the manual operation interface, it can manually control the big throw, medium throw, small throw, slow stop, pause, etc., and there is a real-time status display of the switching port.

F7 Start: showing gray indicates the stop state, click **Start**, if does not report errors, the system will start the filling workflow.

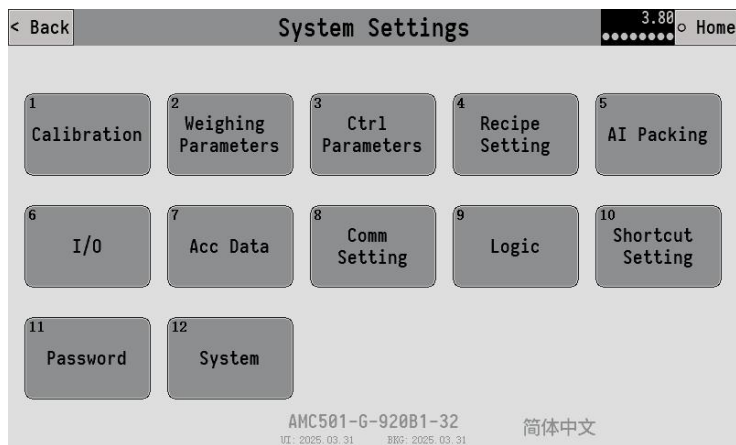
The manual operation interface is as follows:



3. System maintenance

Click **F1 System settings** in the main interface to enter the System Maintenance main menu interface, as shown in the following figure:

(Initial password for system maintenance: 000000)



This screen lists all of the controller's parameter setting option entries.

The model number of the controller and the software date are displayed at the bottom of the screen. Click on the **English** and **简体中文** buttons displayed in the lower right corner to switch between the Chinese/English displays.

Each of the major items in system maintenance is explained in detail below.

3.1. Weight calibration

New equipment needs to be calibrated for weight before use, and the units, accuracy, division value, capacity and other parameters need to be set.

The weight can be calibrated in two ways, either one of which is chosen according to the actual situation:

- (1) Weight Calibration: Calibration using weights or objects of known weight placed on the scale platform.
- (2) Calibration without weights: directly enter the zero voltage value, the voltage value of the gain and the corresponding weight for calibration.

3.1.1. Weight calibration

< Back		1.Calibration		o Home	
1.1	Wt Clb	1.1.1	Unit kg >	Weight 3.80 Sensor Voltage: 0.597 mV Gain Voltage: 0.594 mV Zero Clb Gain Clb	
1.2	No Wt Clb	1.1.2	Accuracy 0.00 >		
		1.1.3	Division Value 0.01 >		
		1.1.4	Capacity 1000.00 kg		

The sensor voltage shown in the right column is the absolute voltage value of the current sensor. The normal

range of this value is 0~15mV, if the value exceeds this range, it means that the signal of the weight sensor is not normal, check whether the sensor is damaged or the line connection is normal and reliable.

The relative voltage, on the other hand, is the difference between the current absolute sensor voltage minus the voltage value at zero calibration, which corresponds to the voltage value produced by the gain weight.

The calibration process can be completed with only two steps, zero calibration and gain calibration, as follows:

- (1) Empty the platform, wait until the signal is stabilized (sensor voltage does not jump) click on the zero clb button, after success the current weight will be displayed as 0.
- (2) Put the weight or known weight object on the scale, after the signal is stabilized (sensor voltage does not jump) click on the gain clb button, at this time the input box pops up, enter the exact weight of the object put on the scale and click on the confirmation.

Once the above two steps have been completed the weight calibration process is complete and the controller will display the exact weight value on the scale.

3.1.2. Calibration without weights

The screenshot shows a user interface for calibration. At the top, there is a header bar with "< Back" on the left, "1. Calibration" in the center, and "Home" on the right. Below the header, there is a sidebar on the left with two options: "1.1 Wt Clb" and "1.2 No Wt Clb". The "1.2 No Wt Clb" option is selected. The main area displays three input fields: "1.2.1 Zero Voltage" with the value "0.003" and unit "mV", "1.2.2 Gain Voltage" with the value "3.125" and unit "mV", and "1.2.3 Gain Weight" with the value "20.00" and unit "kg". To the right of these fields is a large black display showing the number "3.80" in white. Below the display is a button labeled "Calib".

Item	Value	Unit
1.2.1 Zero Voltage	0.003	mV
1.2.2 Gain Voltage	3.125	mV
1.2.3 Gain Weight	20.00	kg

3.80

Calib

In this interface, you can input the zero voltage, gain voltage and corresponding gain weight respectively, and click calib to complete the weightless calibration process.

3.2. Basic weighing parameters

Click on **2.Weighing Parameters** button in the system maintenance interface to enter into the setting interface of basic weighing parameters, the interface is as follows:

The screenshot shows the '2.Weighing Parameters' screen. At the top, there is a navigation bar with '< Back' on the left, '2.Weighing Parameters' in the center, and '3.80 Home' on the right. Below the navigation bar, there is a list of parameters:

- 2.1 Weighing (selected)
- 2.1.1 Zero Tracking: 0 d
- 2.1.2 Zero Range: 10 %
- 2.1.3 Stab. Range: 2 d
- 2.1.4 Stab. Time: 0.8 s
- 2.1.5 Weighing Filter: 3
- 2.1.6 Zero On Startup: OFF

List of parameter descriptions:

2.1.1	Zero Tracking	0~9d;It only works in the stopped state, the weight value is stabilized within the range of this setting× d (minimum index value) and the zeroing is performed automatically.	
2.1.2	Zero range	0~99%;When zeroing, the weight must be less than or equal to "Maximum range × Zeroing range" to allow zeroing.	
2.1.3	Stab. range	1~9d	These two parameters work together to determine if the weight is stable.
2.1.4	Stab. time	0.1~	

		9.9s	Take all the weight values within the "Judging Stability Time", the difference between the maximum and minimum values $\leq$ "Judging Stability Range", the weight value is considered to be stable at this time.
2.1.5	Weighing Filter	0~9;	The intensity level of software digital filtering, according to the actual debugging effect of the equipment to set the appropriate filtering level parameter values. 0: Weakest filtering effect, fast weight response, poor vibration resistance; 9: Strongest filtering effect, slow weight response, good anti-vibration effect.
2.1.6	Zero Startup	On	The controller will automatically perform a clearing operation every time the power is turned on after it is turned on.

3.3. Filling scale control parameters

In the system maintenance interface click **3. Ctrl Parameters**, you can enter the filling scale control parameters setup interface, according to the function and control process will be divided into several categories of parameters.

3.3.1. Feed start

Setting of judgment conditions related to filling start of the filling scale.

The screenshot shows the '3.Ctrl Parameters' screen. On the left is a vertical menu with options: 3.1 Filling Start, 3.2 Pipe Func, 3.3 Filling Process, 3.4 Hold Process, 3.5 Bucket Move, 3.6 Supply Interval, and 3.7 Material Level. The main area displays parameters for '3.1.1 Filling Start Mode' (set to ②Auto), '3.1.2 Tare Function' (set to ②According to Weight), '3.1.3 Filling Start Condition' (set to ①>Start-NZ &Stable), and '3.1.4 Tare Range Checking Time' (set to 1.0 s). At the top right, there is a status bar showing '3.80' and a 'Home' button.

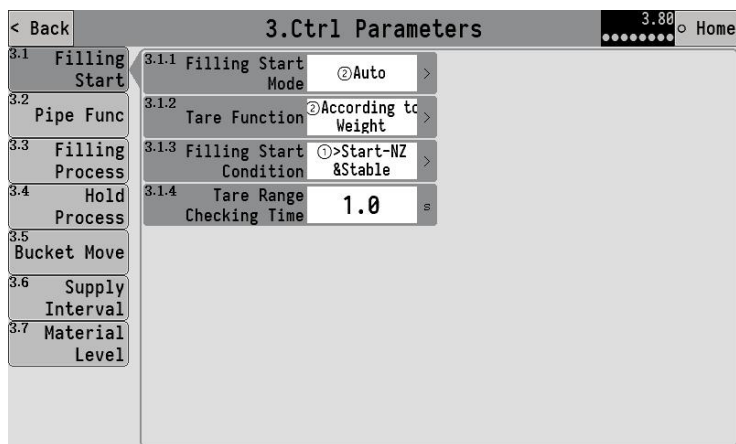
3.1.1	Filling Start mode	① [Manual start]: After meeting [3.1.3 Dosing start conditions], external input of "I14 Dosing start" signal is required to start dosing. ② [Auto Start]: Automatically start dosing after [3.1.3 Dosing Starting Conditions] is satisfied.
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3.1.2	Tare Function	① [disable]: Do not peel before starting to add ingredients. ②[According to weight]: Tare according to the actual weight before adding. ③ [According to pre-set value]: Tare according to the set [4.2.7 Tare value] as tare. ④ [According to recipe para]: Peeling is performed according to the peeling method set in recipe parameter [4.2.6 According to pre-set value].
3.1.3	Filling Start condition	Sets the weight condition to be met when initiating charging. ① [>start-NZ&stable] ② [tare Range^stable] ③ [>start-NZ] ④ [tare range] ⑤ [tare range&>start-NZ&stable] ⑥[tare range&>start-NZ] Zero zone means [4.2.5 start-NZ band]. Compliance with tare means that the weight is within the set tare range, tare range = [4.2.7 Tare value] $\pm$ [4.2.8 Tare error value]. Attention: When [3.1.2 Tare fuction] is set to ② [According to weight], only ①, ② or ⑤ (with stabilized conditions) can be selected for this parameter.

		When [3.1.1 Filling start mode] is set to ② [Auto], only ①, ②, ④, ⑤ or ⑥ can be selected for this parameter.
3.1.4	Tare range checking time	0.0~99.9s Tare range = [4.2.7 Tare value] $\pm$ [4.2.8 Tare error value]. A weight that is within the tare range and lasts longer than this parameter setting is considered to be within the tare range for this current weight. This parameter is effective when [3.1.3 Filling Start Condition] is set to ② [tare Range^{stable}], ④ [Tare range], ⑤ [tare range^{>start-NZ}stable] or ⑥ [tare range^{>start-NZ}].

3.3.2. downrange function

The controller can control the down gun function, control the material gun down before adding material, and control the material gun up after the end of adding material. The relevant function parameters are as follows:



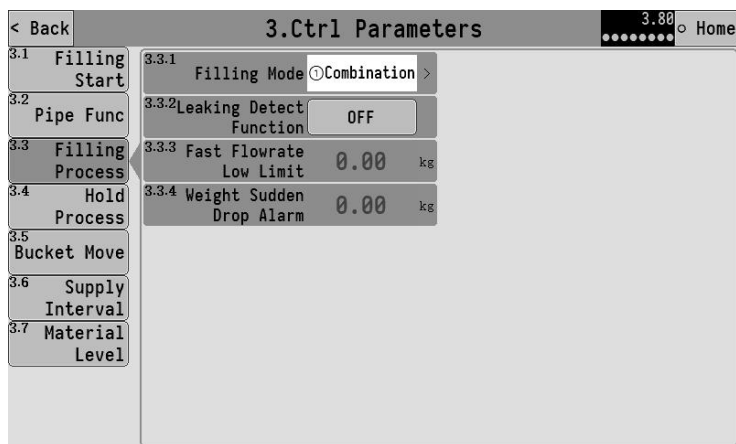
3.2.1	Pipe Drop Set	① [Disabled] : Disables the lower gun control function. ② [Manual Gun Down]: Before feeding, manually input the signal "I8 pipe drop /rise " to control the gun down. ③ [Auto]: Automatically discharging the gun after satisfying [3.1.3 filling start condition] .
3.2.2	Pipe Drop Control	① [Air Drive(no limit)]: Cylinder control without in place detection signal. ② [Air Drive(Lower limit)]: Cylinder control, with lower gun in place detection signal. ③[Air Drive(Up limit)]: motorized control with carry gun in place detection signal. ④ [motor drive(up&low limit)]: motorized control with carry gun in place and lower gun in place detection signal. ⑤ [motor drive(up/med&low limit)]: motor

		control, with lance in place, feeding lance in place and discharging lance in place detection signals. For control parameters, see 3.4.4 pipe tag .
3.2.3	Pipe Drop Start Pre- delay	0.0~ 99.9s Delay time before automatic gun down. This parameter works when [3.2.1 pipe drop set] is set to ③ [Auto].
3.2.4	Pipe Drop done delay	0.0~ 99.9s After this time has elapsed since the start of the downrange maneuver, the downrange maneuver is considered complete. This parameter works when [3.2.2 pipe drop control] is set to ① [Air Drive(no limit)] and ③ [Air Drive(Up limit)].
3.2.5	Pipe Rise start pre- delay	0.0~ 99.9s The delay time before the automatic gun lifting after the dosing is completed.
3.2.6	Pipe Drop over time	If the "I22 gun down in place" signal is not detected after this time after the gun down action has started, the alarm will indicate "gun down action timeout alarm". This parameter works when [3.2.2 pipe drop control] is set to ② [Air Drive(Lower limit)], ④ [motor drive(up&low limit)] and ⑤ [motor drive(up/med&low limit)]. NOTE: A setting of 0 disables the downrange timeout detection alarm.
3.2.7	Pipe Rise	If the "I23 Lift Gun in Place" signal is

	overtime	not detected after this time has elapsed since the start of the Lift Gun action, the alarm will indicate "Lift Gun Action Timeout Alarm". This parameter works when [3.2.2 Pipe drop contro] is set to ③ [Air Drive(Up limit)], ④ [motor drive(up&low limit)] and ⑤ [motor drive(up/med&low limit)]. NOTE: A setting of 0 disables the gun lift timeout detection alarm.
3.2.8	Pipe stuck protection	Pipe stuck protection: After the start of the Pipe stuck action until the completion of the Pipe stuck, real-time monitoring of the weight after the Pipe stuck, if "the current weight - the weight of the start of the Pipe stuck moment > the Weight For checking stuck " is considered to be the case of a Pipe stuck crash, then the alarm prompts "Shotgun crash alarm!"
3.2.9	Weight For checking stuck	

3.3.3. Loading process

Function settings related to the dosing process.



3.3.1	Feeding mode	① [Combination]: Fast: fast, med and slow signal outputs are valid. Medium speed: Med and slow signal outputs are valid. Slow: Small cast signal output is valid. ② [Independent]: Fast: fast output is valid. Medium speed: Med output is valid. Slow: slow output is valid.
3.3.2	Leaking Detect Function	① [Off] ② [ON]: Includes the following two detection functions [3.3.3 Fast Flowrate Low Limit] and [3.3.4 Weight Sudden drop alarm].
3.3.3	Fast Flowrate Low Limit	Set the weight value, the feeding starts to start [4.3.2 fast delay time], after that, it starts to detect the weight

		increased every second during fast fill, if it is lower than the weight value set in this parameter, it is considered that the fast fill is insufficient, there may be leakage of material, and the alarm prompts "Big Pitch Flow Insufficient Alarm" and enters into the pause state. Note: Setting to 0 disables the large pitch flow lower limit detection function.
3.3.4	Weight Sudden drop alarm	Set the weight value, during the feeding process, when the weight is detected to drop suddenly over the value set in this parameter, it is considered that there may be a leakage of material, the alarm prompts "weight drop alarm" and enters the pause state. Note: Setting to 0 disables the weight drop alarm detection function.

3.3.4. normalization process

Setting of the various functional parameters during the fixing process at the end of the dosage.

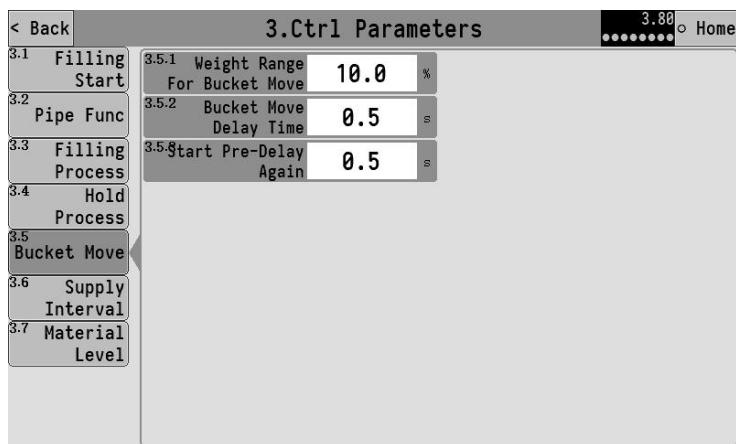
< Back		3.Ctrl Parameters		3.80 Home	
3.1 Filling Start	3.4.1 Hold Need Stab SW	OFF	3.4.7 Under Compensation	OFF	
3.2 Pipe Func	3.4.2 Over/Under Func	OFF	3.4.8 Compensation Times	5	
3.3 Filling Process	3.4.3 Over Tolerance	0.00 kg	3.4.9 Fill-On Time	0.5 s	
3.4 Hold Process	3.4.4 Under Tolerance	0.00 kg	3.4.10 Fill-Off Time	0.5 s	
3.5 Bucket Move	3.4.5 Over/Under Alarm Time	2.0 s			
3.6 Supply Interval	3.4.6 Over/Under Pause	OFF			
3.7 Material Level					

3.4.1	Hold Need Stab SW	① [Off] ② [ON]: After the dosing is completed and the fixed value hold time is over, the weight needs to be stabilized in order to proceed to the next step of the drum transfer process.
3.4.2	Over/Under Alarm Time	① [Off] ② [ON]: The over/under detection of the dosing result will be performed at the end of each dosing.
3.4.3	Over tolerance	If the weighing result is > target value + over tolerance, it will be judged as over when ove/under is detected;
3.4.4	Under tolerance	In case of over/nder detection, if the weighing value < target value - under tolerance, it will be judged as under.
3.4.5	Over/Under alarm time	0.0~ 99.9s Duration of the "Q7 over/under" alarm

		signal output in case of over/under of the weighing result.
3.4.6	Over/Under pause	① [Off] ② [ON]: When there is a super-default, the controller will alarm and wait for the user to process, at this time, after clearing the alarm to continue to run, or you can give the "I2 stop" signal to return to the stop state for processing.
3.4.7	Over/Under compensation	① [Off] ② [ON]: When the over/under condition occurs, the small pitch pointing replenishment function will be activated.
3.4.8	compensation time	1~99 The maximum number of times to replenish the material, if the result is still poor after the number of times to replenish the material exceeds the value set in this parameter, then end the replenishment.
3.4.9	Fill-on Time	0.0~ 99.9s The effective time of the slow signal output when tapping the refill.
3.4.10	Fill-off Time	0.0~ 99.9s Invalid time for the slow signal output when tapping the refill.

3.3.5. Drum transfer process

The process of removing the drum from the weighing table after the filling is complete.



3.5.1	Weight range for bucket move	0.0%~ 99.9% After entering the barrel removal process, the controller detects in real time that the current weight is lower than [4.2.1 Target value] x [3.5.1 Weight range for bucket move], then the barrel is considered to have been removed.
3.5.2	Bucket Move delay time	0.0~ 99.9s After the drum is removed, the "Q9 Bucket Move" signal continues to be output for the time set in this parameter and then turns off.
3.5.3	Start Pre-delay again	0.0~ 99.9s This delay is activated at the end of one filling process, and the next filling process starts after the delay is over.

3.3.6. interval feeding

Setting the interval feeding function can realize that every time the accumulated value of a certain weight is completed, the feeding output will be activated once, and the material will be added to the storage bin.

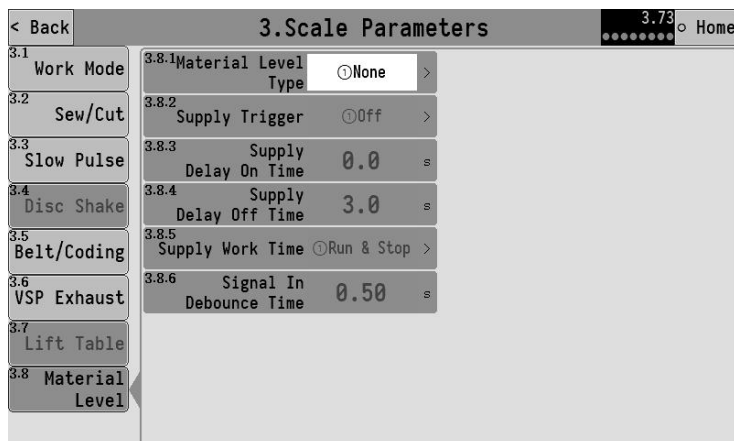
The screenshot shows the '3.Ctrl Parameters' screen. On the left is a vertical menu with options: 3.1 Filling Start, 3.2 Pipe Func, 3.3 Filling Process, 3.4 Hold Process, 3.5 Bucket Move, 3.6 Supply Interval (highlighted), and 3.7 Material Level. The main area displays three parameters: 3.6.1 Interval Weight Set with a value of 0.00 kg, 3.6.2 Supply Output Time with a value of 60.0 s, and 3.6.3 Remain Interval Wt. with a value of 0.00 and a 'Clear' button. At the top right, there is a status bar showing '3.80' and a 'Home' button.

3.6.1	interval weight set	The filling totalization value starts one supply output for each completed weight set in this parameter. NOTE: Setting this parameter to 0 disables the interval feed function.
3.6.2	Supply output time	0.0~ 999.9s The time when the "Q12 Supply fill" signal is output after the feed interval weight is reached.
3.6.3	Remain interval Wt.	The feeding process is initiated upon completion of this remaining weight. Clicking on "Clear" will clear the

		recorded filling weight and restart the interval feeding totalization.
--	--	--

3.3.7. Material level setting

Set the function parameters of signal input and feed output of feeder.



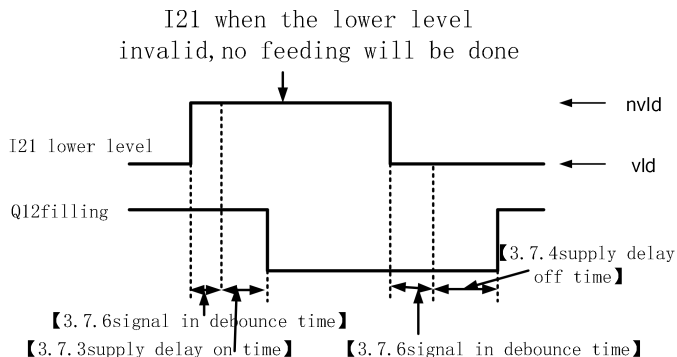
3.7.1	Material Level Type	① [no material level device] : no material level device. ② [single feeding level] : there is 1 feeding level device (feeding level). ③ [material level] : there are two material level device (feeding level, feeding level). ④ [single feeding level] : there is a material level device (feeding level). Note: if the mode with blanking level is selected, feeding will not start if the blanking level signal input is invalid.
3.7.2	Supply	① [OFF]: Turn off the feed output

	Trigger	function. ② [blanking level trigger] : "I11 blanking level" signal input invalid trigger feeding function. ③ [feeding level trigger] : "I9 feeding level" input invalid trigger feeding function. Note: when the material level mode is set to [up and down material level], the feed output will continue until the feeding level signal is effective.
3.7.3	Supply Delay On Time	After the feeding function is triggered, delay this time and output "Q13 starving.
3.7.4	Supply Delay Off Time	After feeding, delay this time and then turn off "Q13 starving " signal output.
3.7.5	Supply Work Time	① [Run & Stop] ② [Run]
3.7.6	Signal in debounce time	0.0~9.99s, The debounce time for the "I20. Upper Level" and "I21. Lower Level" signal inputs. The signal is considered valid after being continuously valid for this duration; The signal is considered invalid after being continuously invalid for this duration. Prevents interference caused by occasional instantaneous signal interruptions or conduction.

3.3.7.1. Detailed Description Of Filling

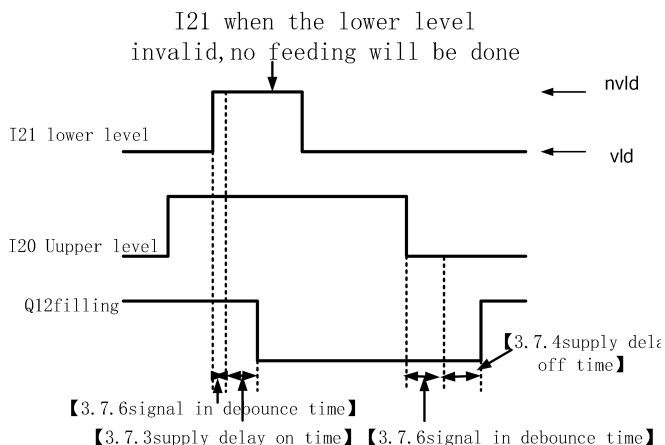
1. Material level mode: single feeding level; Feeding trigger: feeding level trigger.

The sequence diagram is as follows:



2. Material level mode: up and down material level; Feeding trigger: feeding level trigger.

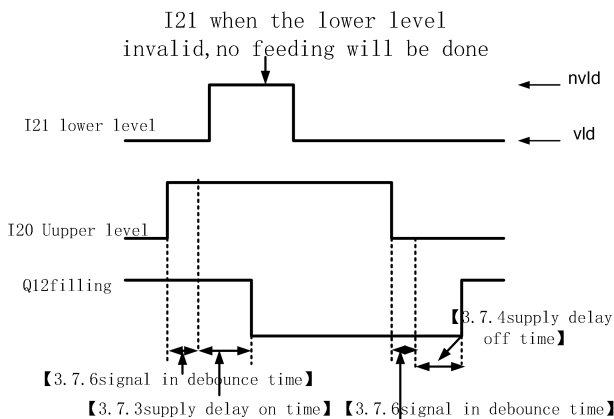
The sequence diagram is as follows:



3. Material level mode: up and down material level;

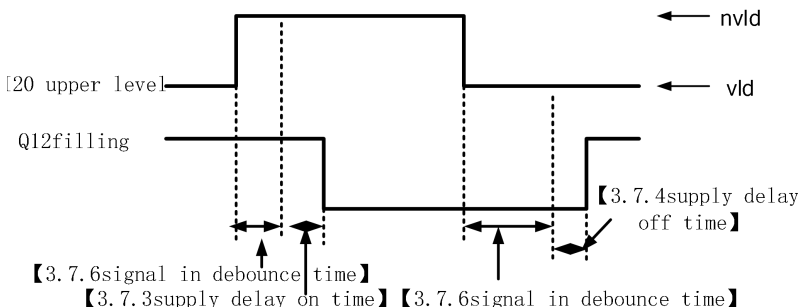
Feeding trigger: feeding level trigger.

The sequence diagram is as follows:



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

The sequence diagram is as follows:



3.4. Formulation parameters

The controller has 20 groups of recipe parameters for setting. Users can set the commonly used recipe parameters in advance and just switch to the corresponding recipe when using.

3.4.1. formulas

4.1.1	Seleted Recipe	Sets the recipe number currently in use.
4.1.2	Enable choose	Once turned on, the recipe will be in the selectable state when you click on the recipe number position in the main interface to make the selection of the recipe number.
4.1.3	Recipe name	The recipe name of the recipe can be entered for easy memorization. After setting, the corresponding recipe name will be displayed at the recipe number position in the main interface.

3.4.2. target value

This screen sets the recipe parameters such as the target value for this recipe number.

< Back		4.Recipe Setting		3.80 Home	
4.1	Recipe	4.2.1	Target	0.00	kg
4.2	Target	4.2.2	Fast Feed	0.00	kg
4.3	Time Set	4.2.3	Med Feed	0.00	kg
4.4	Pipe Stage	4.2.4	Slow Feed	0.00	kg
		4.2.5	Start-NZ Band	0.00	kg
		4.2.6	Tare Function	②According to Weight >	
		4.2.7	Tare Value	0.00	kg
		4.2.8	Tare Error Value	0.00	kg

4.2.1	target	Set the target weight to be obtained for filling.
4.2.2	Fast feed	Close fast output when the weight value $\geq$ target value - fast feed during dosing; A setting of 0 indicates that the large cast output process is not initiated.
4.2.3	Med feed	When the weight value is $\geq$ target value - med feed during dosing, the med output is turned off; A setting of 0 indicates that the CiC output process is not initiated.
4.2.4	Slow feed	Close slow output when the weight value $\geq$ target value - slow feed during charging;
4.2.5	Start-NZ Band	[3.1.3 Filling start condition] It works when set to ① [$>$ start-NZ&stable], ③ [$>$ start-NZ], ⑤ [tare range& $>$ start-NZ&stable] or ⑥ [tare range& $>$ start-NZ]. A detailed description can be found in

		parameter 3.1.3.
4.2.6	Tare function	① [Disable]: Do not peel before starting to add ingredients. ②[According to weight]: Tare according to the actual weight before adding. ③ [According to pre-set value]: Tare according to the set [4.2.7 Tare value] as tare. This parameter works when [3.1.2 tare fuction] is set to ④ [according to recipe para].
4.2.7	tare value	These two parameters are used to determine the tare range. Tare range = [4.2.7 Tare value] $\pm$ [4.2.8 Tare error value].
4.2.8	Tare error value	When [3.1.3 Filling start condition] is set to ② [Tare range& stable], ④ [Tare range], ⑤ [tare range&>start-NZ&stable], or ⑥ [tare range&>start-NZ], there will be a tare range judgment.

3.4.3. time setting

Set the relevant time parameters for the dosing process.

< Back		4.Recipe Setting		3.80 ●●●●●○ Home
4.1	Recipe	4.3.1 Filling Start Pre-Delay	0.0	s
4.2	Target	4.3.2 Fast Delay Time	0.5	s
4.3	Time Set	4.3.3 Med Delay Time	0.5	s
4.4	Pipe Stage	4.3.4 Slow Delay Time	1.4	s
		4.3.5 Result Hold Time	1.00	s

4.3.1	Filling start pre-delay	0.0~ 99.9s;The delay time before dosing begins.
4.3.2	Fast delay time	0.0~99.9s;Elimination of vibration time at the beginning of the fast drop, the fast drop signal is always valid during this time, independent of the weight, and only after the end of this time is it judged whether the weight reaches the fast drop advance and thus ends the fast drop.
4.3.3	Med delay time	0.0~99.9s;Elimination of vibration time at the start of the med, during which the med signal remains active, independent of the weight, and only after the end of this time is it judged whether the weight reaches the med advance and thus ends the med.

4.3.4	Slow delay time	0.0~99.9s Elimination of vibration time at the start of the slow, during which the slow signal is always valid and is not affected by the weight, and only after the end of this time is it judged whether the weight reaches the slow value and thus ends the slow fill.
4.3.5	Result hold time	0.0~99.9s Waiting time after the dosing is completed, after this time is up get the current weight to record the dosing result.

3.4.4. Pipe Stage

[3.2.2 pipe Drop control] When set to ⑤ [Motor drive(UP、Med&low limit)], the control parameters related to the segmented lancing function in the dosing.

< Back

4.Recipe Setting

3.80
●●●●●○ Home

4.1 Recipe

4.2 Target

4.3 Time Set

4.4 Pipe Stage

4.4.1 Pipe Rise Start Wt 0.00 kg

4.4.2 Pipe Rise Step Wt 0.00 kg

4.4.3 Pipe Rise Step Time 0.0 s

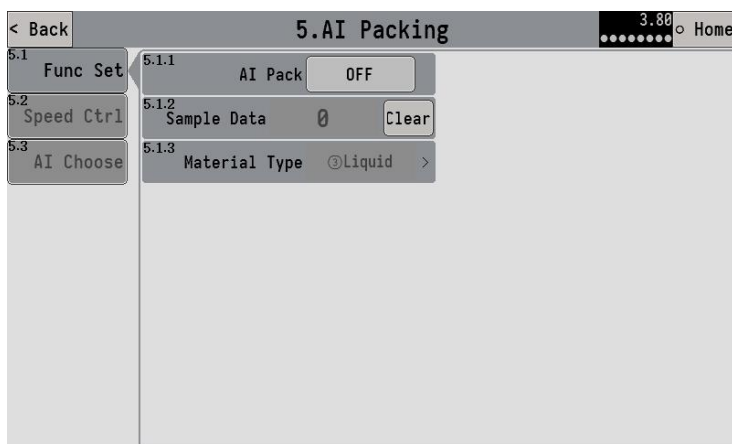
4.4.1	Pipe Rise Start Wt	Start lifting the gun when this weight is reached and stop lifting the gun after [4.4.3 pipe rise step time].
4.4.2	Pipe Rise step Wt	After starting to lift the gun, stop lifting the gun after each increase in this weight [4.4.3 pipe rise step time].
4.4.3	Pipe Rise step time	0.0~99.9s;Effective time for the output of the carry gun in the refill. This parameter is set to 0. It is invalid to lift the gun in the middle of charging, and then lift the gun after the charging is completed.

3.5. AI Packaging

The controller has AI intelligent packaging algorithm researched by Ample Measurement and Control for the packaging process, which can collect the characteristic parameters of each process of feeding, calculate and analyze the collected data through machine learning AI algorithm, and adjust the parameters automatically, so that the packaging scale can operate both fast and accurately.

3.5.1. Function Setting

AI Intelligent Packaging Basic Function Setting.



5.1.1	AI Pack	Master switch for AI smart packaging functions; When the function is on, the controller will automatically adjust the following parameters: [4.2.2 fast feed] [4.2.3 med feed] [4.2.4 slow feed] [4.3.3 med delay time] [4.3.4 slow delay time]
5.1.2	Sample Data	The AI intelligent packaging function will save up to the last 100 weighing data and perform machine learning AI intelligent packaging algorithm calculations to derive the dosing related parameters suitable for the current state. This item allows you to view the number of saved sampling data, and you can click the Clear button to clear the saved sampled

		data and restart the statistical sampling.
5.1.3	Material Type	①[Granule] ② [Powder] ③ [Liquid] Selecting the type of material to be packed, the AI intelligent packaging algorithm can be optimized for different types of materials to get the relevant parameters that are more suitable for the characteristics of that material.

3.5.2. speed control

AI intelligent packaging function related to packaging speed control related parameters, can be set by the AI intelligent packaging algorithm automatically calculates the control of packaging speed, or by the customer to manually set the need to control the packaging speed, by the AI intelligent packaging algorithm to adjust the parameters to achieve the set speed.

Note: If the manually set packing speed is too fast and exceeds the speed that the machine is capable of, the problem of inaccurate packing accuracy may occur.

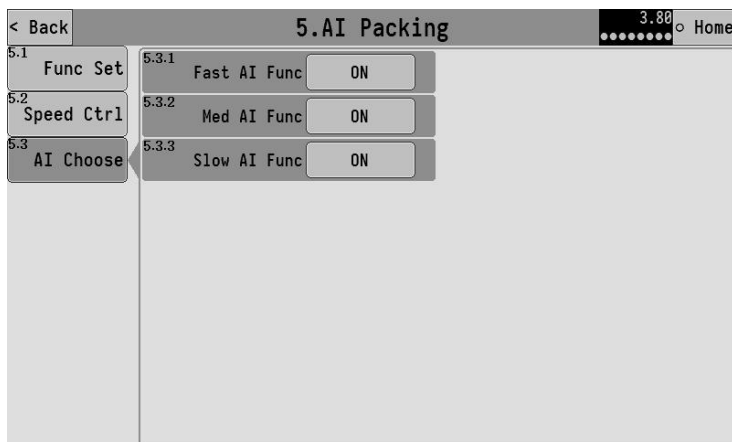
< Back		5.AI Packing		3.80 Home	
5.1	Func Set	5.2.1 Speed Control Mode	①Auto	5.2.7 Fast Buff	0.00 kg
5.2	Speed Ctrl	5.2.2 Speed Grade	1	5.2.8 Med Buff	0.00 kg
5.3	AI Choose	5.2.3 Slow Min Time	1000 ms	5.2.9 Start Slow	OFF
		5.2.4 Slow Error Time	800 ms	5.2.10 Lack Slow	OFF
		5.2.5 Med Min Time	500 ms		
		5.2.6 Med Error Time	500 ms		

5.2.1	Speed Control Mode	① [Auto]: The controller controls the packing speed automatically. ② [Manual]: The packing speed is determined by the set parameters [5.2.3 slow Min Time] and [5.2.4 slow Error time].
5.2.2	Speed Grade	0~4 [5.2.1 Speed Control Mode] works when set to ① [Auto], the smaller the number the faster the speed.
5.2.3	Slow Min Time	0~9999ms When [5.2.1 Speed Control Method] is set to ② [Manual], these two time parameters are used to determine the standard time of the small pitch. Slow delay time+ slow error time ≤ slow feed Standard Time ≤ Slow delay time+ slow error time+ slow Error Time.
5.2.4	Slow Error Time	

		The intelligent packaging function controls the small pitch time always within the standard time by the adjustment of the advance parameter.
5.2.5	Med Min Time	0~9999ms
5.2.6	Med Error Time	These two time parameters are used to determine the standard time of the center pitch. Med delay time+Med Min time $\leq$ med-pitch standard time $\leq$ Med delay time+Med Min time+med error time. The intelligent packaging function controls the center drop time to always be within the standard time through the adjustment of the advance parameter.
5.2.7	Fast Buff	Increase this buffer value on top of the large casting advance when lowering the speed.
5.2.8	Med Buff	Add this buffer value to the center pitch advance when descending.
5.2.9	Start slow	① Off ②ON: At startup, increase the large pitch advance and medium pitch advance to reduce the packing speed.
5.2.10	Lack slow	① Off ②ON: When there is a shortage of material, increase the large pitch advance and the medium pitch advance to reduce the packing speed.

3.5.3. correction switch

The correction switches for large, medium and small pitches can be controlled individually, and the AI intelligent packaging algorithm will no longer adjust the corresponding advance after it is turned off.



3.6. switching mode

You can define the functions corresponding to the switching input and output ports, and you can use the switching test function to test whether the external switching line is normal.

3.6.1. Input Definition

Define the function corresponding to the switching input port $IN1 \sim IN7$. Click on the switching input port to be set and select the function to be defined in the pop-up option box.



The list of functions available for switching inputs is as follows:

function number	Function Name	descriptive
I0	NONE	No functional definition.
I1	running	Up and running.
I2	stop	Stopped running.
I3	slowly stop	Enter the slow stop process, i.e., automatically stop running after completing this filling.
I4	pause	Enter "I1 Start" to resume operation.
I5	zeroing	Perform a zeroing operation.
I6	clear alarm	Clears the alarm status.
I7	Change Rec.	Input is valid once to switch to the next open recipe.
I8	Pipe Drop/Rise	Controls the descent and ascent of the material gun.

I9	Manual slow	Turn on the small cast when it is valid and turn off the small cast when it is valid again. Responds only in the stopped state.
I10	manual med	Turn on the center throw when it is valid and turn it off when it is valid again. Responds only in the stopped state.
I11	Manual fast	Turn on the large cast when it is valid, and turn off the large cast when it is valid again. Responds only in the stopped state.
I12	Clr Total Acc	Clears the total cumulative data.
I13	Clr Rec Acc	Clears the current recipe accumulation data.
I14	Start filling	When [3.1.1 filling Start Mode] is set to ① [Manual] , external input of "I14 Start filling" is required to start the filling process.
I15	Running/Stop	Start operation when valid. Stop running when invalid.
I16	Running/slowly Stop	Start operation when valid. Enter the slow stop process when it is not effective.
I17	Manual slow(Lvl)	Turn on the small cast when it is valid and turn off the small cast when it is not valid. Responds only in the stopped state.

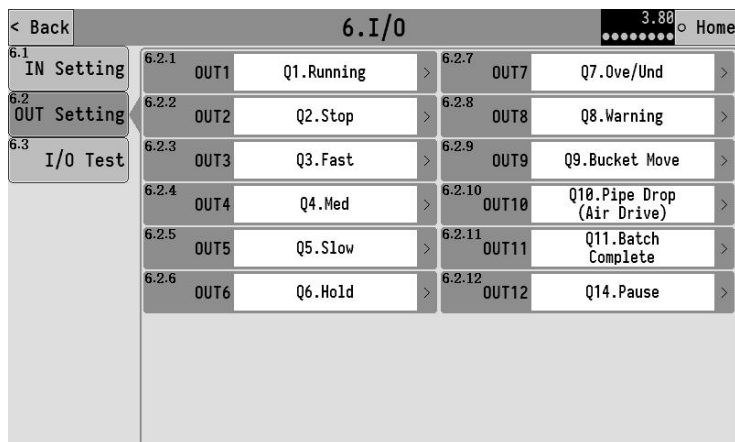
I18	Manual med (lvl)	Turn on the center throw when it is valid and turn it off when it is not. Responds only in the stopped state.
I19	Manual fast (level)	Turns on the big throw when it is valid and turns it off when it is not. Responds only in the stopped state.
I20	Upper level	Input signal for level detection on the hopper. When valid, the material is considered to have reached the upper material level. Detailed features can be found in the 3.3.7.1 section.
I21	Lower level	Input signal for detecting the lower level of the hopper. When valid, the material is considered to have reached the lower material level. Invalid when the material is considered to have been lower than the lower material with, in the lack of material state. Detailed features can be found in the 3.3.7.1 section.
I22	Pipe drop done	Pipe drop in place detection input signal. When valid, it is assumed that the gun has finished descending. 3.2.2 pipe drop control] works when ②

		[air drive(no limit)], ④ [motor drive(up&low limit)] or ⑤ [motor drive(up/med&low limit)].
I23	Pipe rise done	Gun up in place detection input signal. When valid, the gun is considered to have finished rising. [3.2.2 Pipe drop control] works when ③ [air drive(up limit)], ④ [motor drive(up&low limit)], or ⑤ [motor drive(up/med&low limit)].
I24	Pipe medial done	Input signal for detecting the upward movement of the material gun in place during refueling. When valid, it is assumed that the feeding lance has finished rising. [3.2.2 Pipe drop control] is ⑤ [motor drive(up/med&low limit)] when it works, in the process of lowering the gun, if the lowering gun is in place and fails to detect that this signal is valid, then the alarm prompts, does not carry out sectional gun lifting, and will lift the gun only after the refilling is completed.

3.6.2. Output definitions

Define the function corresponding to the switching output port OUT1~OUT12. Click the switching output port to be set, and select the

function to be defined in the pop-up option box.



The list of functions available for switching outputs is as follows:

function number	Function Name	descriptive
Q0	NONE	No functional definition.
Q1	run	The output is valid during the running state.
Q2	Stop	The output is valid during the stop state.
Q3	Fast	Fast dosing control signal.
Q4	med	Medium speed dosing control signal.
Q5	slow	Slow fill control signal.
Q6	Hold	The output is valid when the filling is completed, indicating that the filling has been completed, and the duration can be set to the parameter [4.3.5 Fixed-value holding time], and

		the current weight will be recorded as the result of this filling after the fixed-value holding time.
Q7	ove/und	The over underrun function is turned on, and this output is valid when there is an over underrun alarm in the dosing result.
Q8	warning	The output is valid when the controller has an alarm.
Q9	Bucket Move	When filling is complete, remove the filling drum from the weighing platform.
Q10	Pipe Drop(Air drive)	Output signal for gun down/gun up control (pneumatic).
Q11	Batch complete	This signal output is valid after the set number of batches have been accumulated.
Q12	Supply fill	Feed control output signal. When the signal is active, the feed unit is activated to feed the hopper. Detailed features can be found in the 3.3.7.1 section.
Q13	starving	starving status output signal. If the "I21 lower level" signal input is invalid, there is a lack of material.
Q14	pause	The output is valid during the pause state.

Q15	Slowly stop	The output is valid during the slow stop condition.
Q16	Pipe drop (Motor drive)	Motorized lance down control signal.
Q17	Pipe rise (Motor drive)	Motorized lance up control signal.
Q18	Logic 1	Logic Programming 1 Function Output Signal.
Q19	Logic 2	Logic Programming 2 Function Output Signal.
Q20	Logic 3	Logic Programming 3 Function Output Signal.
Q21	Logic 4	Logic Programming 4 Function Output Signal.
Q22	Logic 5	Logic Programming 5 Function Output Signal.
Q23	Interval supply	Feed output signal for the interval feed function. See 3.3.6 for chapter descriptions.

3.6.3. I/O Test

Switch volume test is used to test whether the input switch volume and output switch volume work normally, The interface is as follows:



I/O output test:

The OUT1 to OUT12 buttons are used to test the output function of the switch quantity. Gray indicates that the output is invalid, and green indicates that the output is valid.

For Example:

OUT3 output port is connected to a relay. To test whether OUT3 output is normal, click the OUT3 button to switch the output state to valid. If the line is normal, the relays connected to OUT3 can be observed to close.

I/O input test:

IN1 to IN7 test the input function of the switch quantity. Gray indicates that the switching input is invalid, and green indicates that the switching input is valid.

For Example:

The IN1 input port is connected with a button switch. To test whether the button switch is normal, you can manually press the connected button. If the line is normal, you can observe that the IN1 indicator turns green. After releasing the button, if the line is normal, you can

observe that the IN1 indicator turns gray.

3.7. Cumulative data

View the controller's batch and cumulative and historical data.

3.7.1. Batch and cumulative

View the accumulated value of the control, and you can set the number of batches to run. The interface is shown below:

The screenshot displays the '7.Acc Data' screen. At the top, there is a status bar with '< Back', '7.Acc Data', and a digital display showing '3.88' with a 'Home' button. Below the status bar, the interface is divided into several sections:

- Left Sidebar:** Contains two menu items: '7.1 Bat&Acc.' and '7.2 History Data'.
- Main Content Area:**
 - Top Section:** Displays 'Acc. Nums: 0' and 'Acc. Wt : 0.00 kg'.
 - Table:** A table titled 'Rec. Acc.' with columns 'Rec.', 'Acc. Nums', and 'Acc. Weight'. It lists 14 rows of data, all showing 0.00 for both 'Acc. Nums' and 'Acc. Weight'.
 - Right Section:** Contains three sub-sections:
 - 7.1.1 Batch Set:** A field showing '0'.
 - 7.1.2 Completed:** A field showing '0'.
 - 7.1.3 Acc. Moment:** A field showing 'Acc. After Bucket Move' with a right arrow.
 - Bottom Section:** Contains four buttons: 'Clr All Acc.', 'Clr Acc.', 'Clr Rec. Acc.', and 'Clr Sel. Rec.'. A 'USB Export' button is located at the bottom right.

7.1.1	batch	Set the quantity to be filled, when the number of runs reaches the set number of batches, the filling process will be stopped and an alarm will alert the batch completion.
-------	-------	---

		The function is disabled when set to 0.
7.1.2	Completed	If the batch count is set, this item displays the current number of completed batches.
7.1.3	Acc. Moment	① [Acc. after bucket move] ② [Acc after hold]

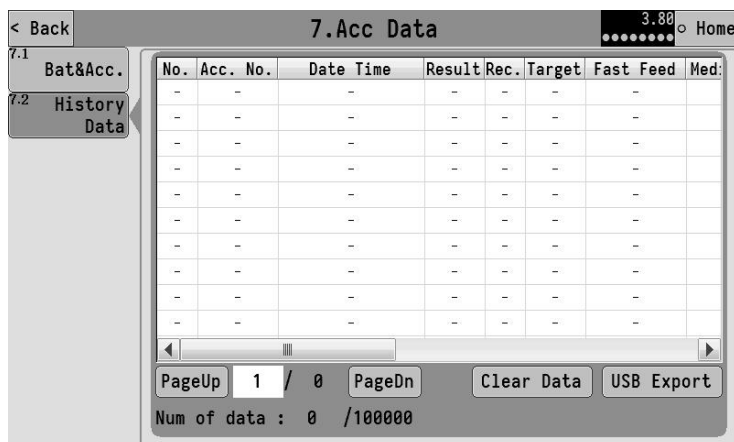
When the controller is inserted into a U disk, the accumulated data file can be exported to the U disk in CSV format.

3.7.2. Historical data

View historical data on filling, including items such as cumulative counts, dates, results, recipe parameter settings, and filling times.

The controller can store up to 100,000 pieces of historical data, and when the storage space is full, it will restart the storage from serial number 1 and overwrite the old data.

When the controller is inserted into a U disk, the historical data file can be exported to the U disk in CSV format.



3.8. Communication interface

The controller can be equipped with two completely independent serial communication interfaces RS232 and RS485, and the communication parameters of the two serial ports can be set respectively.

3.8.1 RS232 Set

This section describes how to set the parameters of an RS232 serial port.

The screenshot shows the '8.Comm Setting' menu. On the left is a sidebar with options: 8.1 RS232 (selected), 8.2 RS485, 8.3 ExModbus, and 8.4 TCP Set. The main area displays settings for the selected RS232 port:

- 8.1.1 Slave ID: 1
- 8.1.2 Protocol: ①Modbus-RTU-H
- 8.1.3 Baudrate: ④38400
- 8.1.4 Data Format: ③8-N-1

8.1.1	Slave ID	Set the communication address (slave station number) of the device.
8.1.2	Protocol	①[Modbus-RTU-H]: Modbus-RTU protocol (Double-word data is preceded by high word). ②[Modbus-RTU-L]: Modbus-RTU protocol (Double word data low word before).
8.1.3	Baudrate	Set the baud rate for the serial port

8.1.4	Data Format	①[7-E-1]:7 data bits, parity check, 1 stop bit ②[7-O-1]:7 data bits, odd check, 1 stop bit ③[8-N-1]:8 data bits, no check, 1 stop bit ④[8-E-1]:8 data bits, parity check, 1 stop bit ⑤[8-O-1]:8 data bits, odd check, 1 stop bit
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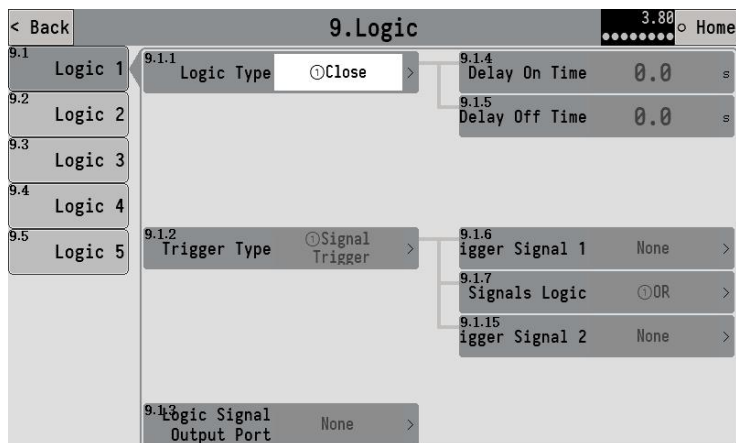
3.8.2 RS485 Setting

For details to see 3.8.1RS232 setting.

3.9. Logic

The controller supports six logic programming functions. If the existing functions of the controller cannot meet the control requirements of the device, you can use the logic programming function to define auxiliary logical output signals in addition to the running flow of the controller to control device actions.

The logic programming setting interface is as follows:



The following uses logic programming 1 as an example to explain the

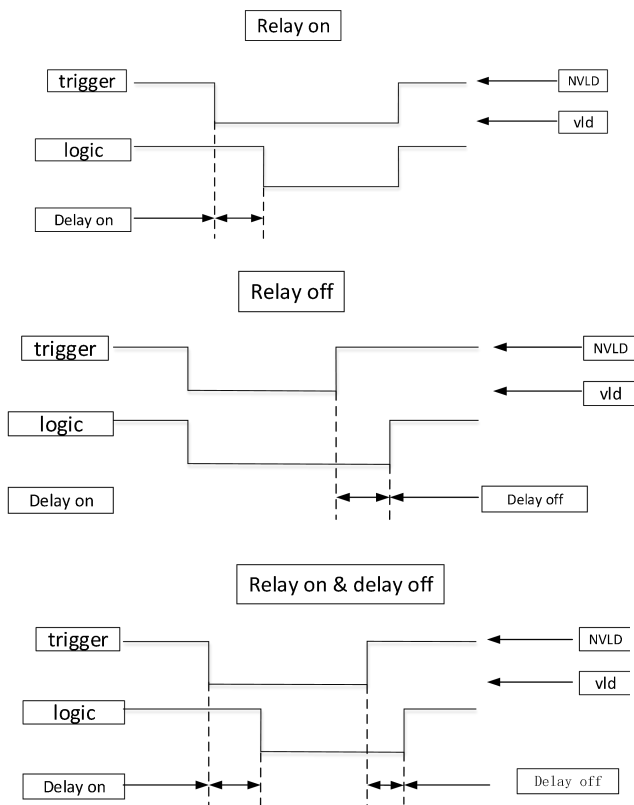
functions of each parameter:

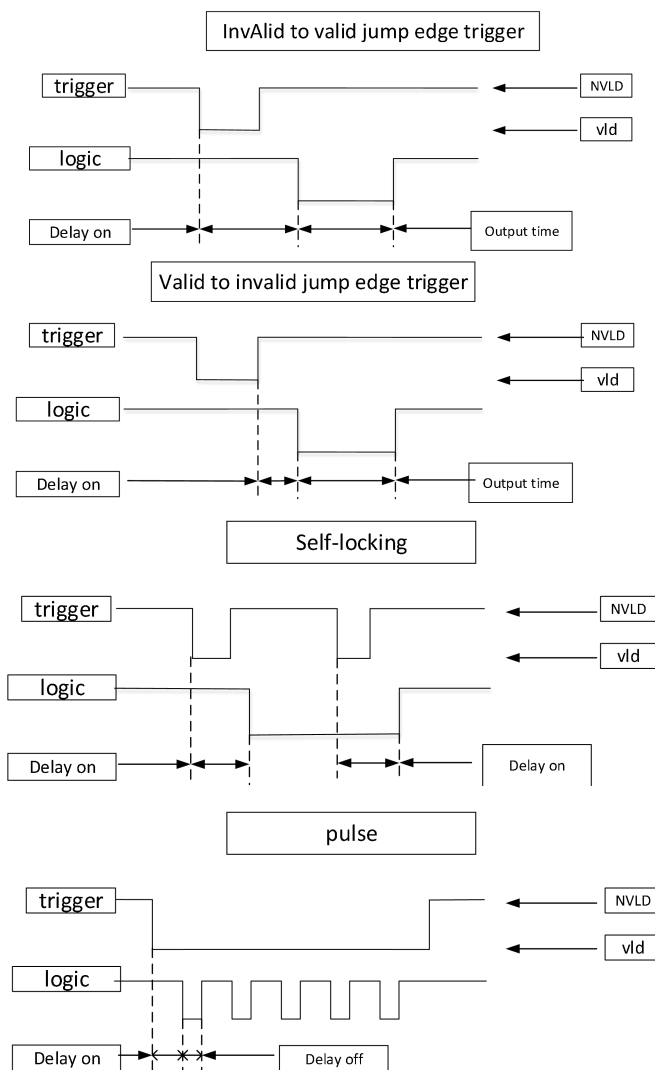
9.1.1	Logic Type	Select the type of logical programming. ①[OFF]: Disable the logical output function. ②[Delay on] ③[Delay disconnect] ④[Delay on and delay off] ⑤[Valid - Invalid jump edge trigger] ⑥[Invalid - Valid jump edge trigger] ⑦[lock] ⑧[pulse] Corresponding function description in detail:
9.1.2	Trigger Type	①[Signal trigger]: The logical output is triggered by a signal. ②[Condition triggered]: Trigger the logical output by reaching a condition. ③[Communication trigger]: The logical output is triggered by a communication command.
9.1.3	Logic Signal Output Port	Select the logical output signal to define to an OUT outlet.
9.1.4	Delay on Time	Logic output signal delay on time.
9.1.5	Delay off Time	The time when the logic output signal is delayed.
9.1.6	Trigger Signal 1	Select signal 1 to trigger the logical output.
9.1.7	Signal Logic	Select the logical relationship between trigger signals 1 and 2 used to trigger the logical output. 1.[or]: Trigger signal 1 and trigger signal 2 can trigger the logical output if either signal is valid. 2.[and]: Trigger signals 1 and 2 need to be valid to trigger the logical output.

		3.[XOR] : The logical output can be triggered only when trigger signals 1 and 2 are different.
9.1.8	Output time	【9.1.1 Logic type】 You can set this parameter when item 5/6 is set. The valid time of the output after the logic signal is triggered, and the logic output ends when the time expires. When this time is set to 0, the logical output signal will be terminated only by a reset signal.
9.1.9	Reset signal set	【9.1.1 Logic type】 You can set this parameter when item 5/6 is set. After the logical output is valid, the reset signal resets the logical output, making the logical output invalid and ending the logical output process.
9.1.10	Reset signal logic	1.[Effective reset] : Reset the logical output when the reset signal is effective. 2.[Invalid reset] : Reset the logic output when the reset signal is invalid.
9.1.11	Trigger Condition Set	Select the condition that triggers the logical output. 1.[Weight greater than set value] 2.[Weight less than set value] 3.[Weight within range] 4.[Weight outside the range]
9.1.12	set value 1	Used to set the weight value corresponding to the trigger condition.
9.1.13	set value 2	
9.1.14	Weight stability condition	1.[ON] : The logical output can be triggered only when the weight meets the trigger condition and is stable. 2.[Off] : The logic output can be triggered after

		the weight meets the trigger condition, without stabilization.
9.1.15	Trigger Signal 2	Select signal 2 to trigger the logical output.

3.9.1. Output sequence diagrams logically





3.9.2. Examples

Through logic programming to achieve the coding function: bag

output signal effective, delay 1 second time, and then output OUT12 lasting 2 seconds, used to control the coding machine in the bag after the completion of the code printed on the bag.

The Settings are as follows:

【9.1.1 Logic type】: Invalid - Valid jump edge trigger

【9.1.4 Delay on time】: 1s

【9.1.8 Output time】: 2s

【9.1.2 Trigger type】: Signal trigger

【9.1.6 Trigger Signal 1】: Clamp

【9.1.3 Logic Signal Output Port】: OUT12

Through the coordination of different trigger signals, trigger conditions and logic programming signals, very flexible logic signals can be combined and output.

For example, to achieve the following logic: real-time detection weight is higher than 100kg, output OUT10 for alarm indication. After the alarm is effective, the delay time is 2 seconds, and the output OUT11 lasts 3 seconds to control the unloading mechanism to discharge the material.

The Settings are as follows:

Logic programming 1: realize the output of OUT10 when the detection weight is higher than 100kg.

【9.1.1 Logic type】: Delay on

【9.1.4 Delay on time】: 0s

【9.1.2 Trigger type】: Condition triggered

【9.1.11 Trigger condition】: Weight greater than the set value

【9.1.12 set value 1】: 100kg

【9.1.3 Logic Signal Output Port】: OUT10

Logic programming 2: implement OUT10 effective delay of 2 seconds, output OUT11 lasts 3 seconds.

【9.2.1 Logic type】: Invalid - Valid jump edge trigger

【9.2.4 Delay on time】: 2s

【9.2.8 Output time】: 3s

【9.2.2 Trigger type】: Signal trigger

【9.2.6 Trigger Signal 1】: Logical output 1

【9.2.3 Logic Signal Output Port】: OUT11

3.10. Shortcut Setting

You can use the Shortcut screen configuration function to configure the parameters displayed in the Shortcut Settings screen (click **Shortcut set**) to enter the main screen.

A maximum of four pages can be displayed on the shortcut page. Shortcuts 1 to 4 can be selected by the check box on the shortcut page. The selected pages are displayed on the shortcut setting page. Quick Settings A maximum of 16 parameters can be displayed on each page. Click the option box and select the parameters to be displayed on the shortcut screen.

The shortcut interface configuration is as follows:

< Back		10.Shortcut Setting		3.80 Home	
10.1	Shortcut1	10.1.1 Para 1	4.2.1 Target	10.1.9 Para 9	4.2.5 Start-NZ Band
10.2	Shortcut2	10.1.2 Para 2	4.2.2 Fast Feed	10.1.10 Para 10	4.2.7 Tare Value
10.3	Shortcut3	10.1.3 Para 3	4.2.3 Med Feed	10.1.11 Para 11	4.2.8 Tare Error Value
10.4	Shortcut4	10.1.4 Para 4	4.2.4 Slow Feed	10.1.12 Para 12	4.3.5 Result Hold Time
		10.1.5 Para 5	None	10.1.13 Para 13	None
		10.1.6 Para 6	None	10.1.14 Para 14	None
		10.1.7 Para 7	None	10.1.15 Para 15	None
		10.1.8 Para 8	None	10.1.16 Para 16	None

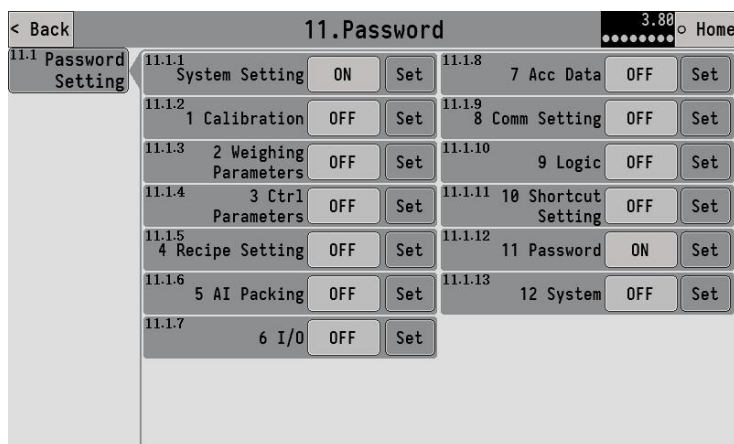
3.11. Password

The **System setting** button on the main screen and 1 to 12 items on the system maintenance menu screen can set a separate password and password switch for each item.

All passwords are set by default: 000000.

To change the password, enter it twice and click **OK**.

The password management page is as follows:

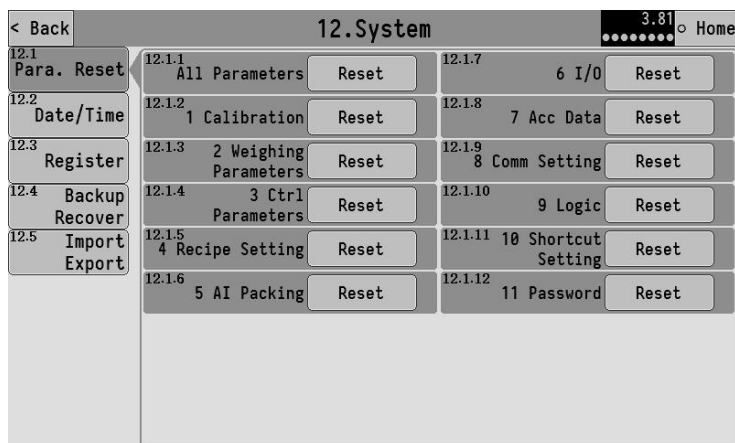


3.12. System

The system interface provides the functions of Para. Reset、Date/Time/Register/Backup Recover/Import Export.

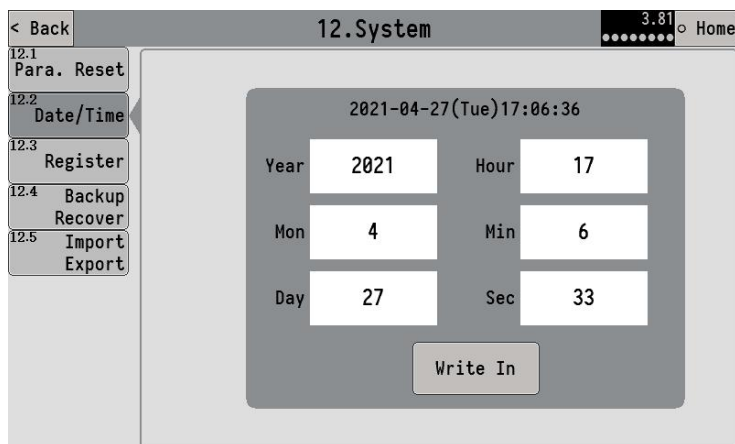
3.12.1. Para. Reset

Press the button **Reset** to reset corresponding parameter values, and the parameter values will be restored to factory Settings. Exercise caution when performing this operation.



3.12.2. Date/Time

It can modify the time and date of the controller.



3.12.3. Register

Product use registration Settings.

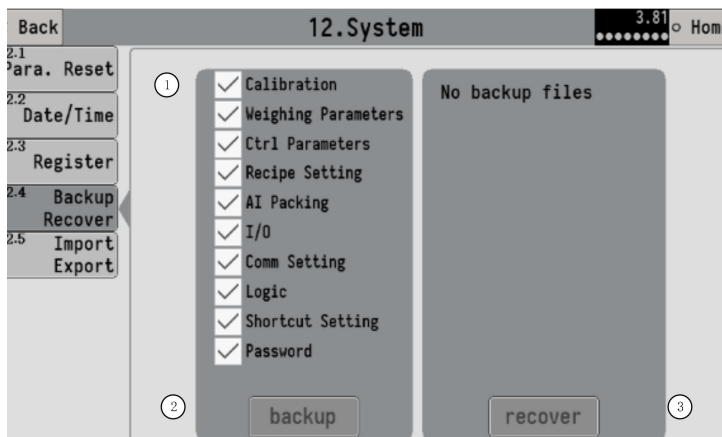


3.12.4. Backup and Recovery

The parameter values of the controller can be backed up to the memory in the machine, and can be restored when needed.

The parameter items to be backed up can be selected on the left side, and the backup file date is displayed on the right side. You can delete the backup file.

To prevent misoperations, when the parameter Backup and recovery page is displayed, By default, the button **Backup** and **Delete** **Backup** are disabled. Special operations are required to enable the backup and delete backup functions, the operation method is to click position ❶ three times, then click position ❷ three times, and then click position ❸ three times to enable backup and delete backup.



3.12.5. Import and Export

The controller can export the current parameters to a USB flash drive in CSV format.

Data export operation:

Select the parameter items to be exported on the left of the interface. After inserting the USB flash drive, click **USB Export** to export the selected items to the USB flash drive.

Data import operation:

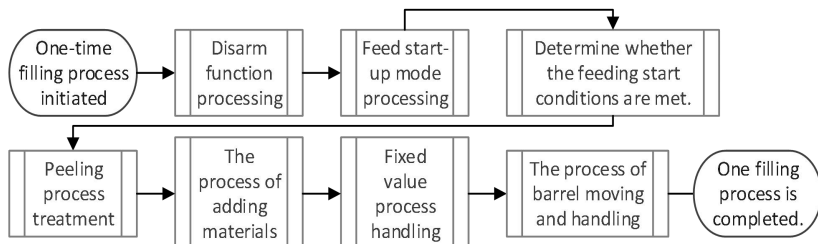
Insert a USB flash drive with data files. Data files in the current USB flash drive are displayed in the list on the right of the interface. Select the data file to be imported and click **USB Import**.



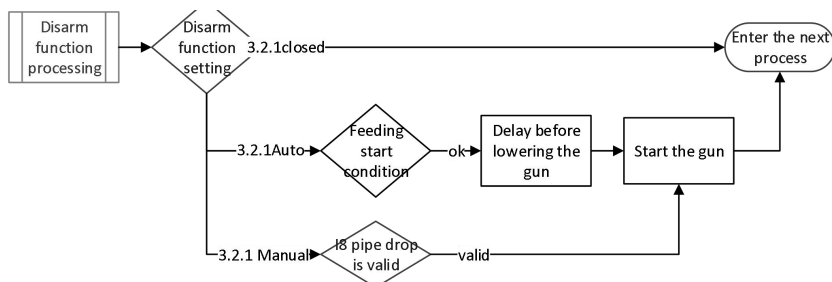
4. Workflow and Function Description

4.1. mainstream process

When the filling process is started, the main functional flow is shown below:

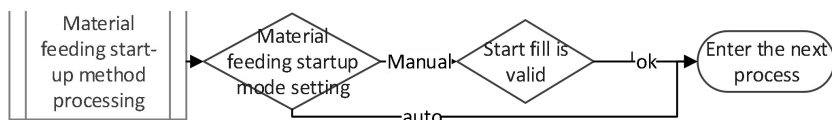


4.1.1. Lower Gun Functional Handling

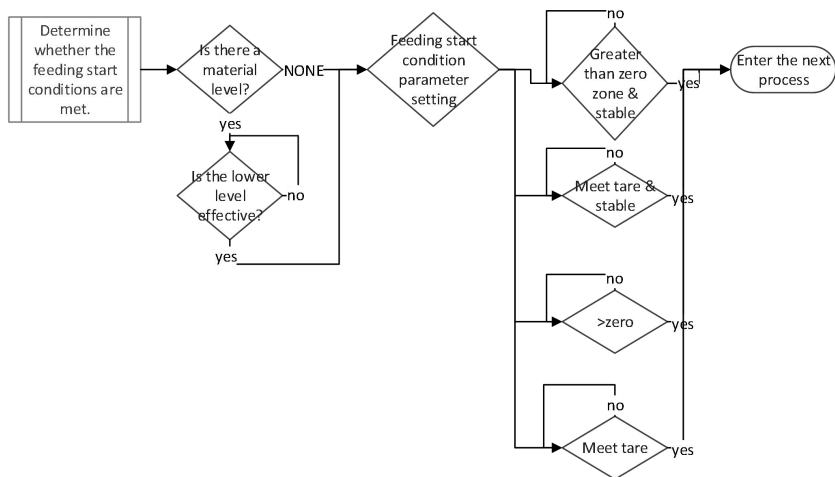


If [3.2.8 Barrel Protection Function] is turned on, the barrel protection detection will be carried out during the gun launching process, and the alarm will be prompted if there is a barrel collision.

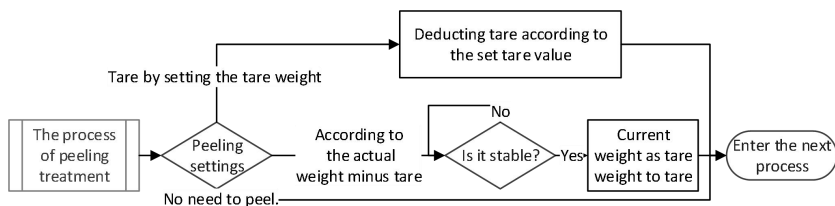
4.1.2. Charge start-up method processing



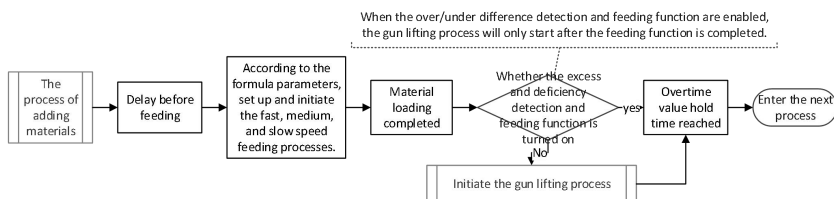
4.1.3. Determine if the charging start condition is met



4.1.4. peeling process

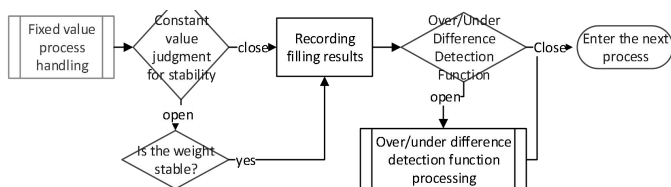


4.1.5. Charging process handling

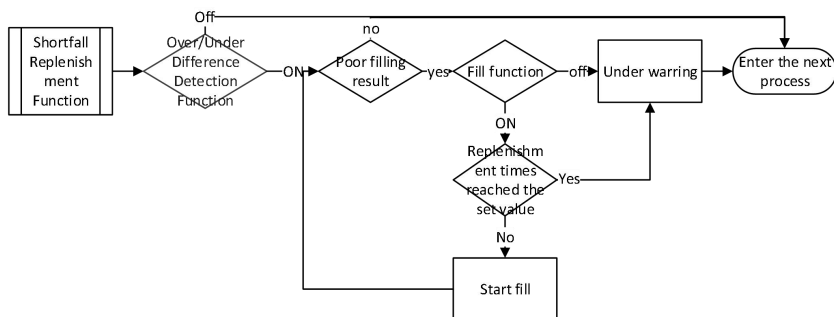


If [3.3.2 Leakage Detection Function] is turned on, the leakage detection function will be carried out during the dosing process. There are two ways of leakage detection, which can be realized by setting the parameters of [3.3.3 Lower Limit of Large Pitch Flow Rate] and [3.3.4 Alarm for Weight Drop].

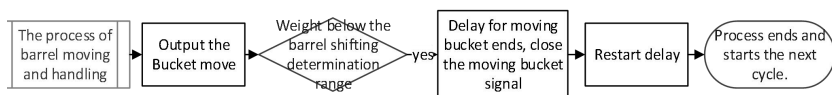
4.1.6. Processing of the fixing process



If the overshoot detection function is ON and the undershoot replenishment function is ON, the replenishment process will be initiated when there is an undershoot condition, and the replenishment related processing is as follows:



4.1.7. Handling of drum transfer process



appendice

update a record

timing	element
2022-3-18	First Edition.
2022-8-20	Fixed the problem of incorrect description of the number of weight calibration methods.
2023-5-26	Parameter [3.2.2 Pipe drop contro] add ⑤ Motorized Segmental Gun Lifting option and its description. Add "I24 Fill gun in place" input signal and its description. Add3.4.4 subsection Carrying Guns chapter. Change3.3.7.1 Feeding Functions Detailed Description Chapter Matching Diagrams. Modify the version number in the header.
2023-8-15	Parameter [3.1.3 Filling start conditions] add ⑤ Conform to tare and greater than zero zone and stabilize and ⑥ Conform to tare and greater than zero zone without stabilizing options and their descriptions.
2025-3-31	Adjust the structure of chapter 1.2, add the serial port wiring schematic, and update the installation dimension drawing. Add AI Intelligent Packaging parameters 5.2.7~5.2.10 and related descriptions.