GENERAL MEASURE

杰 • 曼 • 科 • 技

GM9907-LB

User's Manual

110608070001

V03.01.09

Our company's products are under continually improvement and updating so we reserved the right to modify this manual at any time without notice. For this reason, please visit our website regularly to update newest information.

Company Website http:// www.gmweighing.com

Product Performance Standards: GB / T 7724-2008

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CE

Contents

1. Outline

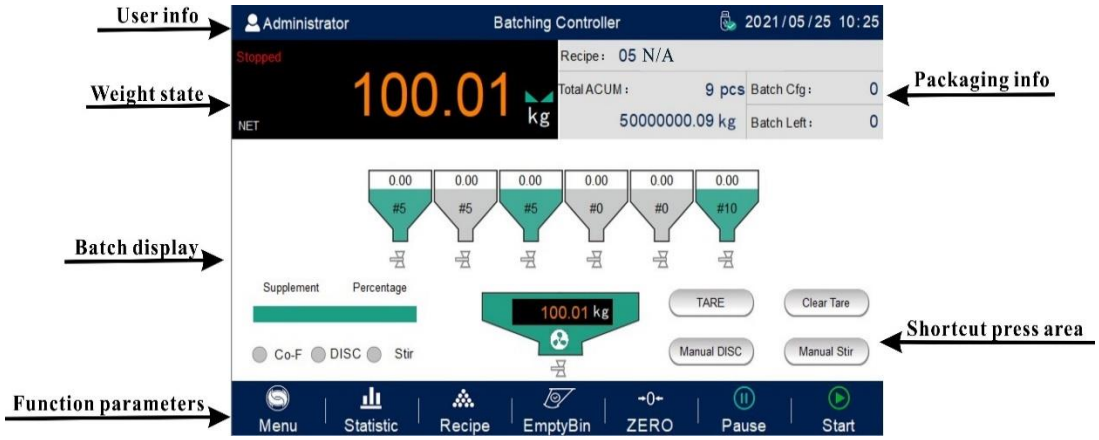
GM9907-LB batching controller is a new batching controller specially developed for the occasion of batching control in industrial field.The controller adopts English touch screen display interface, intuitive and simple operation;The new algorithm makes the weighing control faster and more accurate.USB interface and dual serial port make the device easier to system interconnection.Can be widely used in concrete mixing and asphalt mixture equipment, metallurgical blast furnace, converter and chemical, fill and other occasions need batching control.

1.1 Functions and Features

- Full English display interface, make the operation more intuitive and easy
- 28 I/O Function input and output control (12 in /16 out); input and output port location can be customized.
- I/O test function to convenient batching weighers debugging.
- Jog filling
- 20 recipes can be stored for different weighing capacity
- Convenient USB port to input and output of various types parameters
- Automatic drop correction function
- Multiple digital filtering function
- Batch number setting function
- Automatic zero tracking function
- Time / date function
- Three-level user identity setting
- Dual serial ports to connect with printer, computer, Secondary display.
- Ethernet communication function, can communicate with computer.
- Support 12 batch, each can pause, stir, convient manual filling and mix stir.
- Batching process can not to show the recipe, which can be used for recipe confidential.
- Can display the dynamic batching process, convenient for users to accurately understand the on-site batching state.

1.2 Front Panel Description

Interface Description:



① User info: Show user ID, system time.

② Weight state: Weight value display, weight unit display.

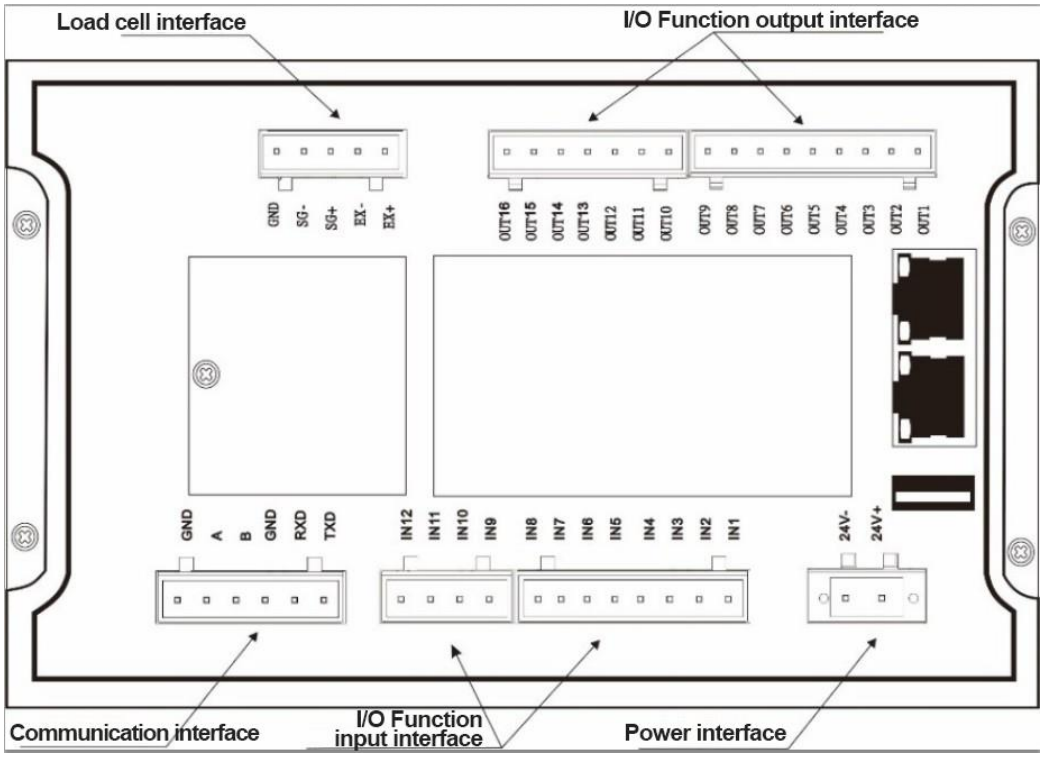
③ Batch display：Can display batch info target value and current weight value, quicky revise batch parameter target value, coarse filling, medium filling etc.

④ Function parameters: Controller menu parameter and setting

⑤Packaging info: Show current ACUM info, switch recipe and set batch number quickly , clear the current recipe .

⑥ Shortcut press area: Tare, clear tare, manual DISC, manual stir shortcut press.

1.3 Rear Panel Description



1.4 Technical Specifications

1.4.1 General specifications

Power supply：**DC24V**

Power filter: Included

Operating temperature:**-10～40℃**

Maximum humidity: 90% RH without dew

Power consumption: about **15W**

Dimensions:：**199mm ×133mm ×46.7mm**

1.4.2 Analog part

Load cell power supply：**DC5V 125mA（MAX）**

Input impedance：**1000Ω**

Zero adjustment range：**0.002～15mV（when load cell is 3mV/V）**

Input sensitivity：**0.02uV/d**

Input range：**0.02～15mV**

Conversion：**Sigma- Delta**

A/D Conversion rate: 120、240、480、960 Times/second

Non-linear： **0.01% F.S**

Gain drift： **10PPM /℃**

The maximum display accuracy：**1/100000**

1.4.3 Digital part

Display: **7 inch** resistance touch screen

Negative display: "—"

Overload Indication: weight over range/low signal of load cell

Decimal point position: **5** options

2. Installation

2.1 General principle

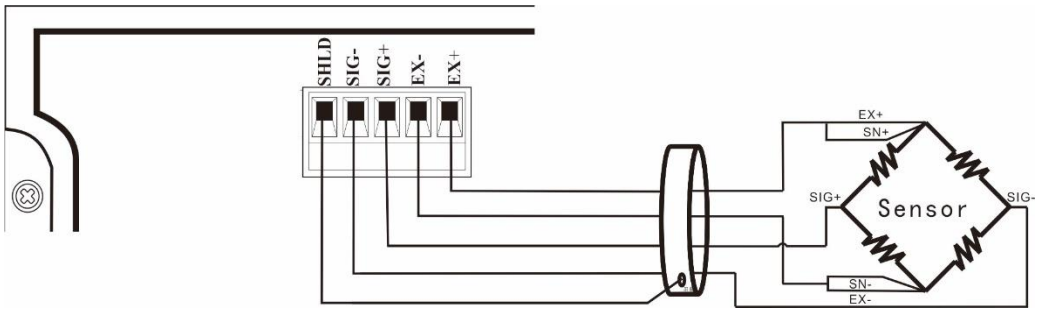
1）Make appropriate installation holes on the control box, (size: 181mm ×115mm)

2）Install the GM9907-LB into a control box.

3）Remove the fixing plates on both sides of GM9907-LB, fix it with the fixing plates and lock them with M3*10 screws.

2.2 Load cell connection

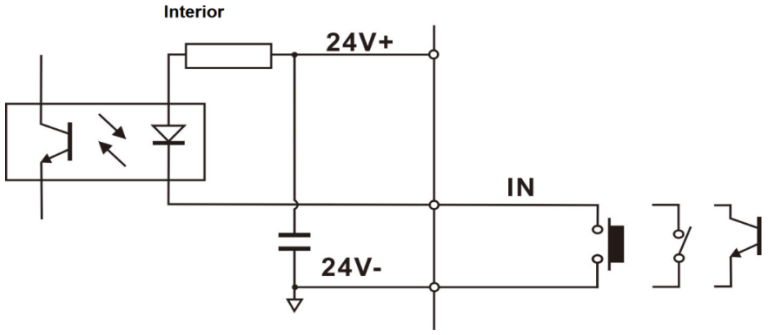
GM9907-LB batching controller can connect a resistance strain bridge sensor.When chose the six-wired load cells, you must bridge the SN+ with EX+ and bridge the SN- with EX-



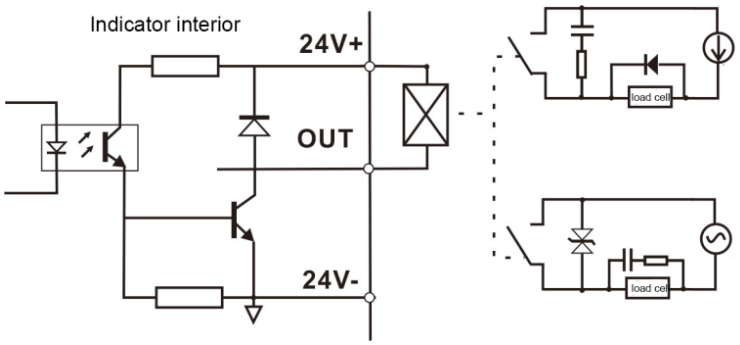
EX+: Excitation+ **EX-**: Excitation- **SN+**: Sense+ **SN-**: Sense- **SIG+:** Signal+ **SIG-**: Signal-

2.3 I/O Function Port Connection

GM9907-LB batching controller controls 28 lines I/O (12 input and 16 output). It uses optoelectronic isolation technology to transfer data. The I/O signal input is low level effective, and the output is open-collector mode. The driving current can reach 500mA and the full load current is up to 3A, and Terminal connection is shown as below:



I/O Function Input port diagram

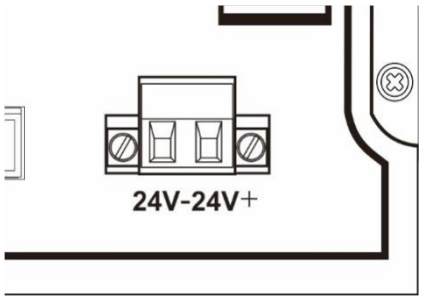


I/O Function output connection diagram

I/O module value of **GM9907** is user-defined to facilitate wiring and some special applications. Please refer to section 4.4 for I/O module.

2.4 Power Supply Connection

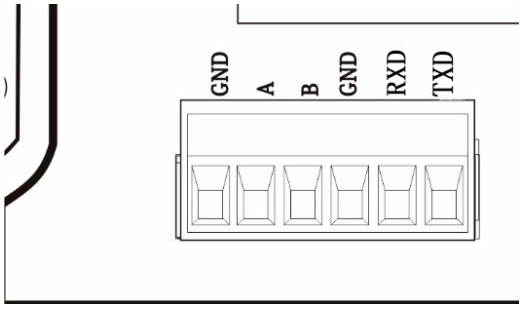
GM9907-LB batching controller use 24V DC power supply. The connection is shown in the figure below：



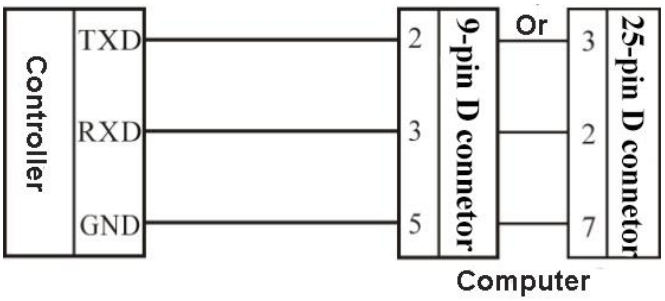
Power terminal diagram
24V+ connect DC+，24V-connect DC-.
Note：this product use 24V DC power supply，use 220V AC power supply will permanently damage the controller and cause danger.

2.5 Serial Port Connection

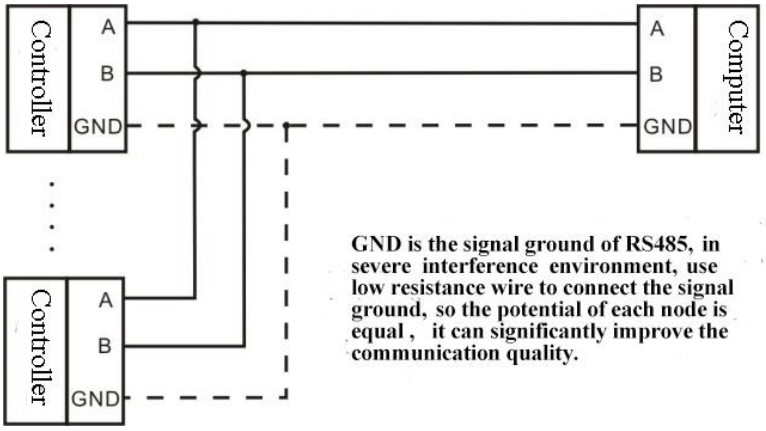
GM9907-LB can provide two serial ports. It is depicted below.One for **RS-232**（Port **TXD**、**RXD**、**GND**）；the other is **RS-485**，（Port **A**、**B**、**GND**）.serial ports support：**MODBUS** mode，Cont mode，Command Mode ,Toledo Protocol and Print.



Controller and computer connection diagram:



Connection between GM9907-LB and a host computer (RS-232):



Connection between GM9907-LB and a Host Computer（RS-485）

2.6 Touch Screen Calibration

Fisrt use new controller or laid-aside for a long time need to calibrate touch screen, calibrate instruction:

GM9907-LB power on, long press any point on the touch screen at the same time, system turn to touch screen calibrate interface, long press cursor position on touch screen, cursor position calibrate finish, after the interface displays the coordinates of this point, enter to next calibrate automatically. Follow cursor position changes long press accordingly, calibrate finish, and interface show 5 calibration point coordinates, enter to main interface automatically. If enter the calibration interface of the touch screen by mistake, press the "cancel" button in the lower right corner to exit the interface.

3. User Permission Description

In order to prevent wrong operation causing **GM9907-LB** working improperly, it provides three rights (operators, administrators and system administrators)：System administrator can perform all operations (not open to users). The operator and administrator rights restrictions are as follows:

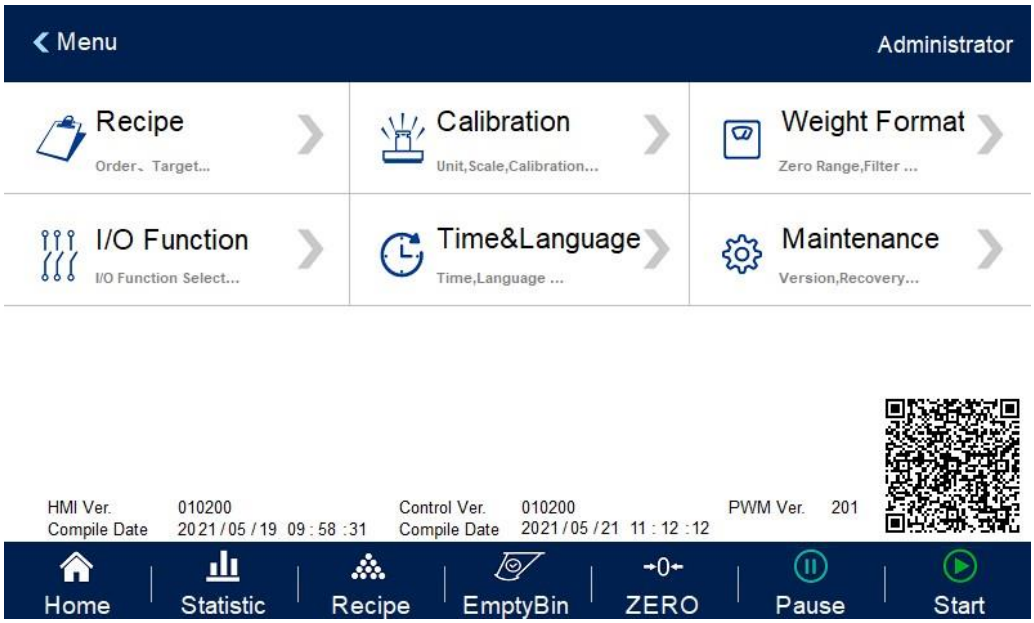
Permission	Operation
Operator	Can check all the parameters.
	Can set recipt's target value and coarse, medium, fine and Inhibit Timer, I/O module test,open the power loss resume,change the recipe name, Number of ingredients,tank No.
	Can change the recipe and set batch No. in main interface.
Administrator	All operator privileges are available.
	Can set over/under value, Continuous filling,Free Fall correction, Compensation, JogFlow ON/OFF, calibration, set weight parameters,I/O module define,set system time,and process the history data.

Permission description：

- Controller default operator log on.
- Swift permission, can click the parameter item that needs permission, and enter the password of the corresponding administrator (**Password:0000**)or system administrator (**Password:000000**) in the pop-up box to log in successfully.
- Click the parameter item that needs permission, and the current user's password can be modified in the pop-up box.
- In the **[*System Info.*]** parameter of **[*Maintenance*]**, set the permission exit time, which is used to limit the login duration of administrators and system administrators. When the permission exit time reaches, the privileges of the current administrator or system administrator will be returned to the operator privileges.

4. Menu

Click the menu to check or revise parameters.The menu is shown as follows.



- Click each parameter item to view and set the home parameter information under the current parameter item.
- Click top left of interface to exit the current interface and return to the previous page.

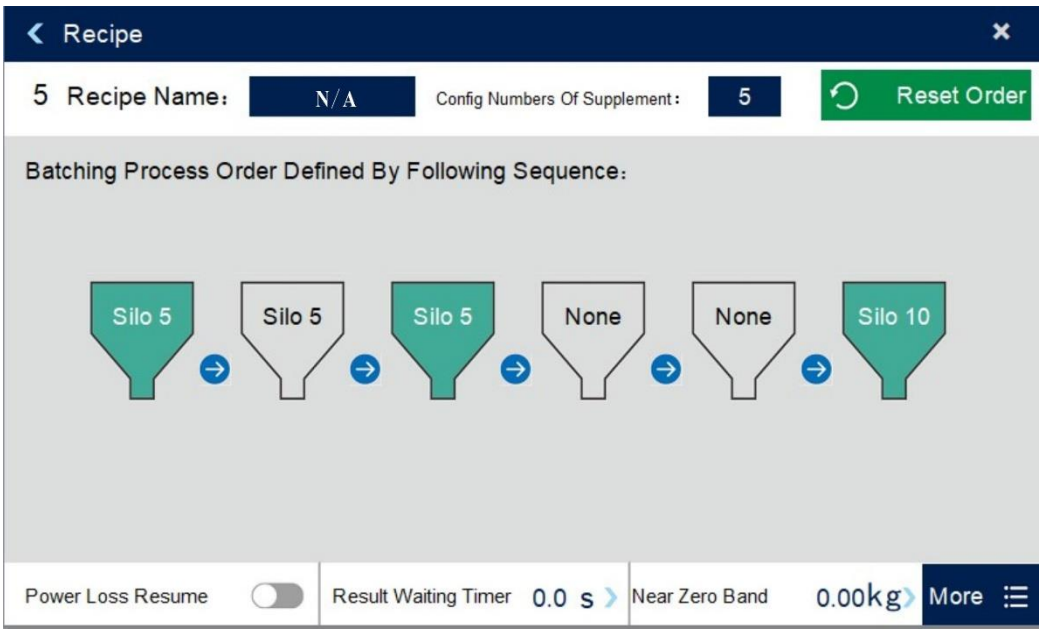
	Parameter	Parameter list	Description
Menu	Recipt	Relevant recipt parameters	Choose recipt No., set packing supplement's target value etc parameters.
			Set Process sequence
			Set recipt's all supplement common relevant parameters.
	Calibration	Set calibration parameters	Set unit, Division, Decimal Point, Full Scale etc.
			Starts calibration job, used to calibrate controller.
	Weighing parameters	STAB Range, Filter Strength etc	STAB Range, zeroing, Filter Strength etc
	I/O Module	Input definition	Input port definition.
		Output definition	Output port definition.

	Time and language	Language setting	Default English, Mandarin and English optional
		Time setting	Screen time setting
	Maintenance	Communication	Serial ports, ethernet, print etc setting
		Hardware Test	To test all input and output connection.
		Reset	All parameters reset to factory setting
		Firmware Update	Firmware Update
		System Info.	Set permission exit time,show the target value,check calibration times ,check code and blacklight setting.

4.1 Recipt parameter

Click the recipe in the menu interface, and enter the 20 recipe selection interface, which displays the recipe number, recipe name and ingredient order.

- Click the recipe number button on the right to switch the recipe number.
- Click on each recipe bar to enter the corresponding recipe interface.
- Click the upper left to return to the upper interface.
- In the recipt interface, can set the process sequence, set the recipt name, set the total number of ingredients, and reset the order of ingredients. As shown in the figure below.



The controller can be configured with 12 kinds of supplements, and corresponding formula parameters should be set for each supplement.

- What is the total number of ingredients set? The corresponding kinds of ingredients should be set. Otherwise, the prompt message "Silos Used NOT Match Recipe" will appear.

Recipt parameters show as below:

Item parameter	Description
Used to set parameters related to packing weight value (single silo parameter setting) Click on each silo and click [Config] in the material setting box to enter the recipe parameter setting of each material	
1.Target value	Target value. Initial value:0; range: 0~full scale
2. Co-Fi Remain	In quantitative process, if the weighing value ≥ target value – Coarse Flow leading quantity, closing Coarse Flow fill. Initial value:0; range: 0~full scale
3. Me-Fi Remain	In quantitative process, if the weighing value ≥ target value – Medium Flow leading quantity, closing Medium Flow. Initial value:0; range: 0~full scale
4. Free Fall	In quantitative process, if the weighing value ≥target - free fall value, closing Fine Flow. Initial value:0; range: 0~full scale
5. Over Limit Value	In quantitative process, if the weighing value ≥target + Over Limit Value, judge as over. Initial value:0.5, range: 0~full scale
6. Under Limit Value	In quantitative process, if the weighing value ≤target –Under Limit Value, judge as Under. Initial value:0.5, range: 0~full scale
7. Pause ON/OFF	After batching each supplement, if need pause, ON/OFF optional. Initial value: ON.
8. Filling PreDelay Timer	When starts quantitative process, after this timer, controller starts STAB and zeroing, (if not the PreFill Zero Interval condition is not met, do not starts STAB, do not zeroing), then starts filling process. Initial value:0.5, range: 0~99.9 (Unit :s)
9. COMP. Inhibit Timer(Co-F)	When starts quantitative process, within this timer, to avoid overshooting without weight judgment, coarse filling has been effective. Initial value:0.5, range: 0~99.9 (Unit :s)
10. COMP. Inhibit Timer(Me-F)	After the end of coarse filling, in this period of time, in order to avoid overshooting without weight judgment, Medium filling has been effective. Initial value:0.5, range: 0~99.9 (Unit :s)
11. COMP. Inhibit Timer(Fi-F)	After the end of the Medium filling, in this period of time, in order to avoid overshoot without weight judgment, fine filling has been effective.

	Initial value:0.5, range: 0~99.9 (Unit :s)
12. Stir Control	Whether the supplement needs to be stirred after filling Initial value：OFF； Stir After Fill, Stir When Fill. （Note：when in Stir After Fill and Stir When Fill below parameters exist）
13. Stir PreDelay	Initial value:0.5, range: 0~99.9 (Unit :s)
14. Delay After Stir	Initial value:0.5, range: 0~99.9 (Unit :s)
15. Stir Time	Initial value:0.5, range: 0~600.0 (Unit :s)（Note：After filling starts stir ,this parameter exist）
[*Recipt*]parameter， set Power Loss Resume,Result Waiting Timer and Near Zero Band parameters.	
1. Power Loss Resume	ON/OFF optional.Initial value:OFF.When turn on,when controller runs appears power loss resume， when return on, pop-up box, after confirm can return to power loss resume working condition.
2. Result Waiting Timer	After the end of the filling of the last kind of supplement, after a delay, the over and under alarm is output. Start to the next material filling predelay timer, if there is no alarm. If it is the last kind of supplement, start unloading.Initial value:0.5, range: 0~99.9 (Unit :s)
3. Near Zero Band	In quantitative process, if weight value≤Near Zero Band， Starts DISC Delay Timer. Initial value:0; range: 0~full scale
[*More*]-[*Page 1*]interface parameter，set batching process timer parameter	
1. Continuous Batching ON/OFF	Initial value：OFF； Optional：OFF: After finishing the supplement, stop and wait for it to start again；On：The batching stops after completing the whole batch
2. Fill Speed Control	Initial value：0：COMB Option：0：COMB；Co-F ABC output，Me-F BC output，Fi-F C output（3 control line）； 1：Sequence filling：Co-F A output，Me-F B output，Fi-F C output（3 control line）； 2：Optimized filling：Co-F BC output，Me-F B output，Fi-F C output（2 control line） （A Co-F signal，B Me-F signal，C Fi-F signal）
3. Pause Time（Co-F→Me-F）	After Co-F，start this time，when time up，Me-F I/O Function start output. Initial value:0, range: 0~99.9 (Unit :s)
4. Pause Time（Me-F→Fi-F）	After Me-F，start this time，when time up，Fi-F I/O Function start output. Initial value:0, range: 0~99.9 (Unit :s)

5. Zero /Tare Prepare For Fill	This parameter is used to control whether zeroing or tare before batching. Initial value：Close； Option:Close, ZERO:Excute zeroing function before batching, TARE: Excute tare function before batching.
6. Tare Range Control ON/OFF	Tare Range Control ON/OFF. Initial value：OFF；ON/OFF option.（Note：when turn on 7~8 parameters can find）
7. Tare Up Limit	When Zero /Tare Prepare For Fill is tare and Tare Range Control is ON，controller is on running condition，to test current weight is in the range，if in the range, start process range，if not, back to stop state.Under the stop state, to input the tare, the current weight also needs to be judged in the range .Within the range ,tare is valid.Initial value:0; range: 0~full scale
8. Tare Low Limit	When Zero /Tare Prepare For Fill is tare and Tare Range Control is ON，controller is on running condition，to test current weight is in the range，if in the range, start process range，if not, back to stop state. Under the stop state, to input the tare, the current weight also needs to be judged in the range .Within the range ,tare is valid. Initial value:0; range: 0~full scale
9. Gross Sign Correction	Initial value：OFF；ON/OFF option. When turn on，controller show weight is negative，automatically reverts to 0 under the stopped state,the stable state and gross sign within zero range.
10. DISC Control	Initial value：DICS Batching Finish；option：DICS Batching Finish / DICS Filling Finish DICS Batching Finish：after all supplement batching finish, starts DICS DICS Filling Finish：after batching one supplement，starts DICS
11. DISC Permission	Initial value：OFF；option：ON/OFF ON：after batching，need DISC Permission signal starts DICS； OFF：after batching，no need DISC Permission signal allow DICS
12. DISC Delay Timer	In the discharge process，current weight lower than Near Zero Band starts DISC Delay Timer，after DISC Delay Timer stop DICS（DICS output invalid） Initial value:0.5, range: 0~99.9 (Unit :s)
13. DISC Monitor Time	After DISC signal valid starts timing，when DISC Monitor Time is up，but DISC signal is still valid, output alarm. Initial value:0.5, range: 0~99.9 (Unit :s) Note:Turn off the DISC monitor function when set to 0.
14.Batching Monitor Time	When system cannot complete the corresponding batching process within the set time, the alarm will be output Initial value：**0**；range：**0.0~999**。(Unit:**s**) Note:Turn off the batching monitor function when set to 0.
15.STAB Prepare For	Initial value：OFF；option：ON/OFF ON: After one kinds of material finish batching ,before batching next material

Changing	need to judge stable. OFF:After finish batching, the next material start to batching directly.
[*More*]−[*Page 2*]parameter，set OVER/UNDER, Auto Free Fall Correction, JogFlow ON/OFF etc parameter.	
1. OVER/UNDER Check	"ON/OFF"option,when this parameter set"ON"， value process starts OVER/UNDER Check
2. Over/Under pause ON/OFF	"ON/OFF"option,when this parameter set"ON"， value process appear Over/Under, controller pause wait for user's processing. I/O function input E-Stop，back to stop state，clear alarm；
3. Over/Under Alarm timer	No manual Clear History Data Info., alarm timer is up, Over/Under alarm closed automatically Initial value:0.5, range: 0~99.9 (Unit :s)
4. Compensation Times	When the quantitative process is judged to be under, fine filling will be carried out according to this value. When the number of filling time is up, if it is still under, then directly stop compensation and output the over and under alarm. When set to 0, the filling function is off. Initial value:3; range: 0~99
5. Fill-ON Timer	Filling outputting, one circle, fine filling valid time. Initial value:0.5, range: 0~99.9 (Unit :s)
6. Fill-OFF Timer	Filling outputting, one circle, fine filling invalid time. Initial value:0.5, range: 0~99.9 (Unit :s)
7. Free fall correction Reference Samples PCS	The free fall value is the weight value that does not fall into the controller bucket after closing the fine filling signal. Carry out free fall correction according to the actual free fall value according to the requirements of correction. When set to 0, turn off free fall correction. The controller will be set the number of the average value of the average value of the fall, as the basis for the correction of the fall. Initial value:0; range: 0~99
8. Free fall Correction Effective Range	When the free fall value exceeds the set range, the free fall value will not be included in the arithmetic average range. Initial value ： **0.2**； range：**0.0～9.9**（target value %）
9. Free fall Correction Percentage	Every Free fall Correction Percentage Initial value ： **50%**。 Option：**100%、50%、25%**。

10. JogFlow ON/OFF	“ON/OFF” option，set to “ON” Controller starts fine filling. Initial value ： OFF
11. JogFlow ON Timer	Fine filling JogFlow output, an on-off cycle, fine filling effective time. Initial value:0.5, range: 0~9.9 (Unit :s)
12. JogFlow OFF Timer	Fine filling JogFlow output, an on-off cycle, fine filling ineffective time. Initial value:0.5, range: 0~9.9 (Unit :s)
[*More*]-[*Page 3*] Peripheral stirring function parameters	
1. Peripheral stirring mixer	Initial value：OFF；Option：ON/OFF ON：Use peripheral stirring function； OFF：Use original striring function（hopper mixer）
2. Peripheral Blending time	After finishing the last kinds of material DISC, after the blending time arrives, stir mix signal output is invalid. Initial value:0.5, range: 0~600.0 (Unit :s)
3.Release Time	Time of discharge from mixer to container . After mixing,start this time and output the mixer discharge signal.The mixer discharge signal is invalid after the delay time . Initial value:0.5, range: 0~99.9 (Unit :s)
4.Delay after Release	The mixer enters the waiting state after discharging.After the delay,the mixer enters the idle state.Only the mixer is in the idle state,the controller can discharge. So before discharging after each batching ,it’s necessary to judge whether the mixer is in the idle state.Initial value:0.5, range: 0~99.9 (Unit :s)
5.Stirring switch during discharging	Initial value :OFF； Option :ON/OFF. After opening, stirring is allowed during discharging.

4.2 Calibration

Calibration should be done when a GM9907-LB controller is used at the first time, or the preset parameters can’t meet the user’s demand due to change any part of the weighing/bagging system.

To enter calibration parameter need to input correct password as it is protected by password per International Standard. Calibration password can be modified by clicking any parameter requiring permission. (Initial password: **0000**)

Calibration interface, provide two kinds of calibration methods: weight calibration and supplement calibration.The calibration steps are as follows:

Calibration parameter	**Item parameter**	**Description**

	1.Unit	Initial value: **kg**. Option: **g/kg/t/lb.**
	2. Decimal point	Initial value: **0.00**. Option: 0~0.0000.
	3 Minimum division	Initial value：**1；1/2/5/10/20/50/100/200/500**
	4 Full capacity	Initial value：**100.00**； Full capacity≤minimum division×**100000**
	5. Weight Correct Coefficient/WT Correct	After calibration, if the zero is correct, the weight deviation exists, which can be used to correct the weight value. How this value is calculated: if the controller shows the weight as A, but the weight after weighing is B, the correction factor is calculated as :(actual weight B× current correction factor)/ indicated weight **A** Initial value：**1.00000；range：0.00001~9.99999**
Zero Calibration	Zero Calibration is to calibrate the zero position of the scale platform.There are two ways for zero calibration: automatic acquisition and manual input.When the new equipment or weighing structure is adjusted, the "automatic acquisition" method must be used for zero calibration. **Automatic acquisition：** Calibration success conditions: the metering bucket emptied, balance platform stable. After empty the scale, controller displays the current millivolt.Press ***[Calibration Zero]*** to calibrate the current state as zero state. **Manual input：** Manually input zero corresponding to millivolt value, click ***[Cal ZERO By Valtage]***, input the recorded zero voltage value in the pop frame to calibrate as zero.The voltage value is the data recorded when the weight is calibrated. The recorded value is used for manual input.	
Calibration Weight	The function of weight calibration is to use the weight calibration method in the field. Here are the steps: Step 1: According to the demand to choose units, decimal point, Minimum division and other weighing parameters Step 2: To Calibration Zero, refer to the calibration steps of the Calibration Zero. Step 3: Put the weights on the weighing table, and when the weighing table is stable, click ***[Calibration Weight]***, input the weight of the weights in the bullet frame, and click "Enter" to complete the calibration of the weights.	

Theoritical Calibration	Theoretical value calibration is to carry out weight calibration by inputting the sensitivity and range of the connected load cell Steps as follow： Step 1：According to the demand to choose units, decimal point, Minimum division and other weighing parameters Step 2：Click ***[Theoretical Calibration]*** and set the total range of the load cell in the pop-up frame (if connect multiple load cells and input the total range of the load cell). Step 3：Set load cell sensitivity (if connect multiple load cells and enter average sensitivity) Step 4：Turn on the " Theoritical Calibration " ON/OFF, then the interface will display " Theoritical Calibration In Use "

4.3 Weighing Parameter

In the menu interface, click the ***[Weighing]*** menu to enter the current parameter item to view and set the home parameter information

Parameter	**Item parameter**	**Description**
Weighing parameters	1. PWR-ON Zero Range	When power on start PWR-ON Zero（The weight of the scale bucket meets the PWR-ON Zero Range） Initial value：0%；parameter range：full range 0%-99%
	2. STAB Range	In the time of stability, the weight change range within this setting value is judged to be stable by the controller Initial value：3；range：1～99(d)
	3. STAB Time	Initial value：0.3；range：0.1～9.9
	4. D-Filter Strength	D-Filter Strength level 0：no filter；9：filter effect is strongest Initial value：7 range：0～9
	5. Vib-Filter	ON/OFF option，On the basis of D-Filter, secondary filtering is carried out。Initial value:OFF
	6. Zero Range	Zero Range Initial value：50；range：1～99（full range %）
	7. TrZero Range	Weight value within this range，controller zeroing automatically. When the value is 0, do not zero tracking Initial value:0, range: 0～9(d)
	8. TrZero Time	Initial value：2.0；range：0.1～99.9 （Unit **:s**）
	9.A/D Sample Rate	A/D Sample Rate 120tims/s, 240times/s, 480times/s, 960times/s option. Initial value：480times/s

4.4 I/O Module

GM9907-LB has equipped with 12 input ports and 16 output ports if with expansion board to connect with other devices. Input, output factory default definition as follow（Output ports **1-16** matches with **OUT1~OUT16**，Input ports **1-12** matches with **IN1~12**）

Default definition：

Output		Input	
OUT1	**O6** 1st Supplement	IN1	**I8**M-Disc/DISC Permission
OUT2	**O7** 2nd Supplement	IN2	**I1**Start
OUT3	**O8** 3rd Supplement	IN3	**I2**Pause
OUT4	**O9** 4th Supplement	IN4	**I3** E-stop
OUT5	**O10** 5th Supplement	IN5	**I6** Clear Alarm
OUT6	**O11**6th Supplement	IN6	**I7** Change Recipe
OUT7	**O3**CO-F	IN7	**I9**TARE
OUT8	**O4**MI-F	IN8	**I10** Clear Tare
OUT9	**O5**FI-F	IN9	**I11** Start/Stop
OUT10	**O18**Value	IN10	**I2** Manual Stir
OUT11	**O19**OVER/UNDER	IN11	**I0** None
OUT12	**O22**DICS	IN12	**I0** None
OUT13	**O23**NearZero		
OUT14	**O25** Alarm		
OUT15	**O30**Stir		
OUT16	**O1** run		

4.4.1 Output port & input port definition

The output port and the input port can be defined according to the application content. In I/O interface:

I/O module description

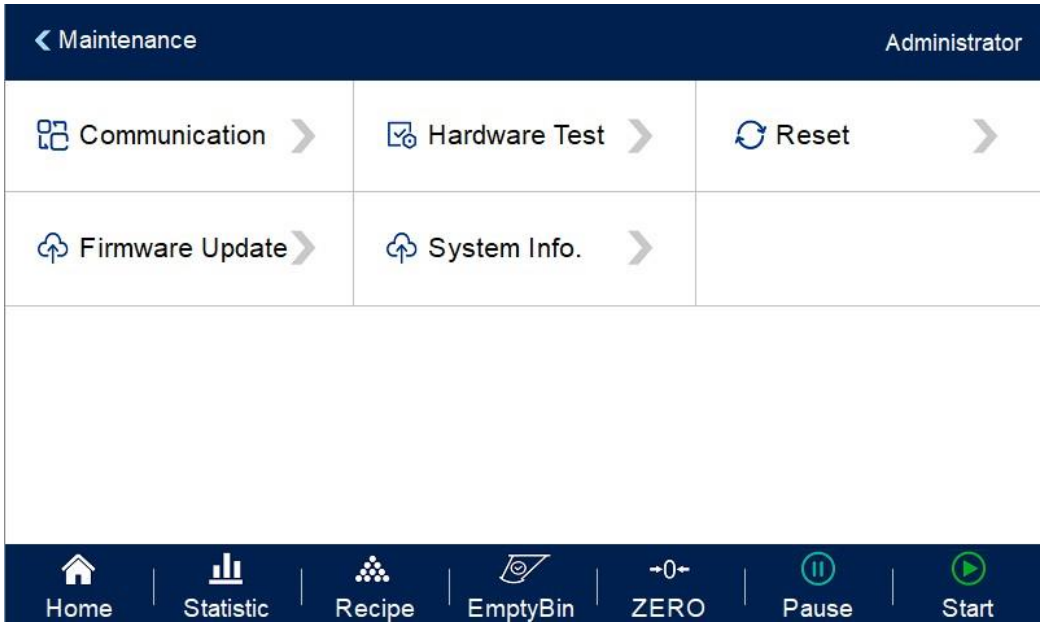
Output		
Code	**Content**	**Explanation**
O0	Undefined	Undefined if output port is O0.
O1	Running	The output signal is defined valid in run state.
O2	Stopped	The output signal is defined valid in stop state.
O3	Co-Fill	Coarse discharge port for controlling filling mechanism.In

		the process of filling, when the current weight is less than the target value - Co-Fill Remain, the output signal is defined as valid.
O4	Me-Fill	The middle discharge port is used to control the filling mechanism.In the process of filling, when the current weight is less than the target value - Me-Fill Remain, the output signal is defined as valid
O5	Fi-Fill	A fine discharge port for controlling the filling mechanism.In the process of filling, when the current weight is less than the target value- Over Limit Value, the output signal is defined as valid.
O6	1st Supplement	Controller is in charge of No. 1 batching, this signal is valid.
O7	2nd Supplement	Controller is in charge of No. 2 batching, this signal is valid.
O8	3rd Supplement	Controller is in charge of No. 3 batching, this signal is valid.
O9	4th Supplement	Controller is in charge of No. 4 batching, this signal is valid.
O10	5th Supplement	Controller is in charge of No. 5 batching, this signal is valid.
O11	6th Supplement	Controller is in charge of No. 6 batching, this signal is valid.
O12	7th Supplement	Controller is in charge of No. 7 batching, this signal is valid.
O13	8th Supplement	Controller is in charge of No. 8 batching, this signal is valid.
O14	9th Supplement	Controller is in charge of No. 9 batching, this signal is valid.
O15	10th Supplement	Controller is in charge of No. 10 batching, this signal is valid.
O16	11th Supplement	Controller is in charge of No. 11 batching, this signal is valid.
O17	12th Supplement	Controller is in charge of No. 12 batching, this signal is valid.
O18	Result Waiting	Used to indicate the end of the filling process.This signal is valid from the end of Fi-Fill to the time before DICS.
O19	Over/Under	When Over/Under, this signal is valid.
O20	Over	When is Over, this signal is valid.
O21	Under	When is under, this signal is valid.
O22	DISC	Used to control bucket's discharge door. The signal is effective after the result waiting timer, so that the supplement is discharged from the measuring bucket into

		the packaging bag.
O23	NearZero	This signal is valid if the current net weight is less than the set value of the NearZero zone.
O24	STAB	When STAB is valid, current output is valid.
O25	Alarm	When Controller appears OVER/UNDER, batch No.is up, alarm, this output is valid.
O26	Batch Complete	This output is valid when the controller has completed the set batch.
O27	Pause	When the controller is in pause state, this signal is valid.
O28	Batch Done	This signal is effective when the 12 supplements (all supplements) are matched and the result waiting timer is up.
O29	DISC Done	The signal is valid when the controller discharge is completed, and the effective time is 1s.
O30	Stir	When controller is in Stir state, this signal is valid.
O31	OFL	When controller is OFL, this signal is valid.
O32	ZERO Failed	When the scale is not stable or the weight is not within the range of zeroing, the instrument is effective for zeroing operation.
O33	Blender Release	Start the external mixer mode, output I/O function defines the mixer discharging signal at this time the discharging output is valid
Input		
I0	Undefined	Undefined if input port is 0
I1	Start	This signal is valid in running state. (Pulse input signal)
I2	Stop	Finish current package and then return to stop state. (Pulse input signal)
I3	E-Stop	Emergency stop, Return to stop state if signal is valid. (Pulse input signal)
I4	Pause	When in running state, this signal is valid, controller will enter pause state, and this input is pulse input signal.
I5	ZERO	The signal effective controller will realize gross zero clearance.This input is a pulse input signal.
I6	Clear Alarm	Used to clear the alarm output of the controller.This input is a pulse input signal.

I7	Change Recipe	This input is valid once, increments the recipe number by 1, and returns 1 when the recipe number is greater than 20.If a recipe has a target value of 0, the recipe is skipped.
I8	M-Disc/DISC Permission	Used to manually remove the supplement in the metering bucket under the stop state.The input is valid for the first discharge output, and invalid for the second effective discharge output. Under the running state, it is input as the discharge allowed signal.
I9	TARE	If the signal is valid under the condition of tare, the current weight will be taken as the tare weight to perform the tare operation
I10	Clear Tare	If the signal is valid and meets the condition of Clear Tare, the Clear Tare operation is performed and the gross weight is returned.
I11	Start/Stop	The signal effective controller will enter the running state, this input is the level input signal.
I12	Manual Stir	When this signal is valid, controller will enter stir state.
I13	Allow release	Turn on the external mixer mode to take effect. If this signal is defined, wait for the allowable signal of discharge. If no signal is defined, discharge directly.
I14	Print All Supplement ACUM Data	In the stop state, this signal is valid. The controller prints the cumulative of all materials in the current recipe.
I15	Print All Recipe ACUM Data	In the stop state, this signal is valid. The controller prints all the recipes accumulated.
I16	Manual discharging	For manual discharge input of the peripheral mixer, press the peripheral mixer for discharge at this time. Press it again to stop the discharge of the peripheral mixer.
I17	Material level	When the material level signal of the discharge bin is on and the function of the external mixer is turned on, and the material level signal is valid, unloading is not allowed.

4.5 Maintenance



4.5.1 Communication Setting

GM9907 provides two serial communication interface; See Section 2.5 for the definition of serial port output; correct setting of port parameters can be used for communication.

Communcia tion **parameters**	**Item Parameters**	**Description**
Serial port parameters（Serial port 1. RS232 Serial port 2. RS485）	ID No.	Initial value: 1. Option: 1~99.
	Baud rate	Initial value：**38400**；**9600/19200/38400/57600/115200**
	Communication mode	Initial value：**Modbus-RTU.Modbus-RTU, rE-Cont, rE-Read, tt, rS-Cont, rS-Read, Print.**
	Data format	Initial value: 8-E-1 (8 data bits - even parity -1 stop bit). **8-E-1、8-N-1、7-E-1、7-N-1**
	Modbus Hi-Lo	**Modbus** communication mode: Initial value:**AB-CD**(Hi ahead)； **AB-CD**(Hi ahead)、**CD-AB**(Low word first) （The mode of communication is visible with MODBUS-RTU parameters）
	Send Interval	The time interval between frames in continuous transmission.Range 0-1000ms, default value: 50ms. （The mode of communication is visible with ***tt***、***rE-Cont***、***rS-Cont*** parameters）

	Send Checksum	Whether to send a checksum under the TT (Toledo Continuous Mode) protocol. On/off optional, off by default.
Ethernet parameters	Communication Mode	Modbus-TCP，address please refer to section **6.5.3**
	Hi-Lo	Modbus communication display method： Initial value：AB-CD(Hi ahead)； AB-CD(Hi ahead /CD-AB(Low word first))
	port number	Initial value：**502**； **1~65535**
	IP	Initial value：**192** Range：**0~255**
		Initial value：**168** Range：**0~255**
		Initial value：**101** Range：**0~255**
		Initial value：**246** Range：**0~255**
	Subnet mask	**255.255.255.0**
	Gateway	**192.168.101.254**。
	MAC	**BC.66.41.9X.XX.XX**。
Print	Auto Print	On/Off is optional; when "On" is selected, the package result will be printed out automatically every time the package is completed (the serial port should be selected as "Print"). Initial value: off.
	Printer Format	Initial value: **24** columns of printing ; **24**columns of printing / **32** columns of printing.
	Print Language	Initial value: Chinese ; Chinese / English optional.
	Print Empty Line Nos.	The number of lines after the print is completed. Initial value: **3** ; **0~9** optional.

4.5.2 Hardware Test

This can check whether the output and input interfaces of the instrument are normally connected with external devices through IO test. Before I/O test, I/O test switch on, and then I/O test.

Output port test: under the IO test interface, start the output test, that is, after clicking the corresponding output port button, the color of the interface port will light up. The output state of the corresponding external connection should be valid. If it is invalid, it indicates abnormal connection.

Input port test: in the IO test interface, when the external input signal is valid, the corresponding input port color under the interface will be lit up to green.When the external input is valid, the interface has no response, indicating abnormal connection. Check the power

input and wiring of the I/O Module, etc.

4.5.3 Factory Reset

Administrators and system administrators can restore and backup data through the restore factory in ***[Maintenance]***.

Factory Reset	**1.** All(Except Calibration)	Click this item to restore all parameters of the meter (except calibration parameters) to factory setting values.
	2. All	Click this item to restore all parameters of the instrument to factory setting values.
	3. Recipe	Click this item to restore formula parameter value as factory setting value.
	4. Calibration	Click this item to restore the calibration parameter value to factory setting value.
	5. Communication	Click this item to restore communication setting parameter value is factory setting value.
	6. Weight Format	Click this item to restore the property parameters of weighing to the factory setting value.
	7. I/O Function	Click this item to restore switch value definition parameter value as factory setting value.
	8. ACUM	Click this item to restore supplement ACUM and recipe ACUM as factory setting value.

4.5.4 Software upgrade

You need to be a system administrator to make software upgrades. Refer to Section 5.11 to upgrade USB flash disk for details.

4.5.5 System info.

System info.	Permission Auto Logout	Permission exit time setting. can choose 5 minutes, 10 minutes, 20 minutes,30 minutes.
	Recipe Target Display	On/Off is optional; when “On” is selected,the target value of each material tank can be displayed on the main interface.
	Calibration Times	Display the calibration times.
	Calibration Checksum	Display the calibration checksum.
	Backlight Switch	The screen goes out when the backlight is turned on.

	Backlight Length Of Time	Turn on the backlight and set the backlight time. When the time is over ,the screen goes out .Click the screen to re-light up. Initial value: 15s； Range: 15~1800.(s)
	Main interface parameter permissions	Restrict users from operating on the main interface.
	Buzzer switch	The option to turn on/off is available, controlling whether the buzzer makes a sound when the touchscreen is clicked.
	Buzzer duration	Control the time when the buzzer sounds when touching the touchscreen.

4.6 Statistics

In the main interface, click ***[Statistics]*** to enter the interface.Users can view the supplement accumulation, formula accumulation and historical record under the parameter "Statistics", and carry out operations such as U disk export or data clearance on the historical record.

- In ***[Supplement ACUM]***， check the current recipt ACUM and each supplement ACUM weight. Click ***[Data Edit]*** to print the supplement ACUM of the current recipe and clear recipe ACUM data.
- In ***[Recipe ACUM]***, Check the cumulative weight and cumulative times of each formula No., Click the right side of the interface to switch the Supplement 1-7,8-14 and 15-20. Click ***[Data Edit]*** to clear all recipe ACUM data and print all recipe ACUM data.
- In ***[History Data]*** interface， can check history data.Click ***[Data Edit]***, the History Data can be exported through the U disk, also can clear the History Data.(Note:#1 refers to the materials filling sequence,not the tank No.)

5. Function Description

5.1 Batch

Batch number is the number of automatic batching controller, set the range of 0 ~ 9999, in the process of automatic complete set by the number of times, controller issued a number of times to alarm and shutdown, wait for the user processing, batch number and alarm output, at this time to remove alarm button or "alarm" input signal effectively, controller will clear the alarm, at the same time return to stop state.

If the batch number is set to 0, if the “Continuous Batching ON/OFF " is off, the batch number judgment will not be carried out.After the discharge is completed, it directly enters the stop state;If opened, enter the next ingredient.

If in the mode of each supplement, only after the completion of the last supplement discharge, to judge whether the number of batches is completed

5.2 Batching Process Order function

The “Config Numbers of Supplement" for recipe parameters determines the setting range for the number of recipe parameters.

Example: if " Config Numbers of Supplement " is set to 5, 5 kinds of supplements can be batched, and the process sequence of formula parameters can only set the ingredients parameters of 5 cans.If the number of cans set exceeds " Config Numbers of Supplement ", an error will be warned when returning to the interface.

In the process sequence, the supplement is batched in sequence, in which the supplement tank number and supplement batching parameters can be set

The tank number can be set repeatedly. The tank number refers to the serial number of external supplements, not the serial number of supplement filling sequence

5.3 ACUM content check and clear

[Statistic] interface can check ACUM content and clear ACUM.

The ***[Supplement ACUM]*** interface reads the ACUM and total ACUM situation of the 12 supplements with the current formula number

The ***[Recipe ACUM]*** interface can switch Recipe number to read the ACUM and click any formula to clear the selected recipe ACUM.

The ***[History Data]*** interface records the filling time of each scale, recipe number, the

target value of each supplement filling sequence and the actual ingredients value.(#1 refers to the filling order of supplements, not the tank number)

[Data Edit] only clears the historical data in the "History Data" interface, and does not clear the accumulation.Clear cumulative steps: "maintenance" -> "restore factory" -> "reset ACUM parameters".

5.4 Manual DICS/DICS allow

In the stop state, the external input "manual DICS" signal, the controller discharge output is effective;Input "manual discharge" signal again, the controller discharge output is invalid.

In the running state, after the completion of Result Waiting, the discharge operation shall be carried out when the “DICS allow" signal is effective and the " DICS output" of the controller is effective.

5.5 Manual Zeroing

In the stop state, the external input "zero" signal, can reset the controller gross weight.(The current reset operation should be in a stable state and the gross weight within the reset range, otherwise the controller will not reset, and display "when reset, the scale body is not stable" or "when reset, the current weight beyond the reset range" error message).

5.6 Power Loss Resume

(1) When “Power Loss Resume ON/OFF" is on, the controller has Power Loss Resume function.When the controller suddenly power off, to be power on again, can restore the working state before power off.

(2) No matter “Power Loss Resume ON/OFF" is on or off, the controller suddenly power off in the stop state(The batching has been completed). After power on again, enter the current weighing display state.

(3) When “Power Loss Resume ON/OFF" is on, controller has the power-down save function.When the controller is in the working state, the power suddenly falls off. When the power is re-energized, it asks "Restore power?", select "OK" to restore the working state before the power loss, and complete the batching process before the power loss;Select

"Cancel" to enter the current weighing display state.

5.7 Compensation Function

When "Over/Under alarm ON/OFF" is turned on and the current batching result is judged to be Under, controller will automatically start the Compensation function (the " Compensation Times" is set to non-0) for filling operation.When the current batch result is still Under after the set number of filling, the "Under" alarm signal will be output and the batching process will continue after the OVER/UNDER alarm timer arrival.

In the process of compensation, controller will decide which filling method to use by itself according to the comparison of the results of ingredients and the weight value of each stage.

5.8 Free Fall Correction

When the "free fall correction sampling times" is not 0, the controller will automatically correct the drop value according to the results of the ingredients during the batching process.

“Free fall correction sampling times”: the controller averages the set number of times of drop values, which is used as the basis for drop correction.

“Free fall correction range”: when the current drop value exceeds the set range, the current drop value will not be included in the arithmetic average range.

5.9 DICS monitoring function

After“DICS signal”is valid，start“DICS monitoring function”，if“DICS monitoring function”is finished，DICS signal is still valid，output alarm signal，after back to stop state automatically. When DICS monitoring function is set to"0"， turn off DICS monitoring function.

5.10 Batch monitoring function

In batching process, in“batch monitoring time”setted time can’t finish batching process，output “batch overtime”，back to stop state automatically. When batch monitoring timer is set to“0”，turn off filling monitor function.

5.11 USB disk update software

5.11.1 Foreground update process

Steps as follow

1.	Plug the USB drive containing the upgrade kit “tpcbackup” into the controller.
2.	Power up the controller, and the message "You are using the comprehensive function package of **mcgsTpc U** disk, click 'Yes' to enter the system setting interface and start the comprehensive function package, click' No 'to exit";Click "Yes" and the "User Project Update" button pops up
3.	After clicking the "User Project Update" button, select the project to download
4.	After download will restart automatically

5.11.2 Background update process

Steps as follow

1.	Insert U disk to computer, creat new folder "GM9907 - LB" in the U disk;
2.	Save “**GM9907-L-Upload.gm**” to folder “**GM9907-LB**”
3.	Plug the USB disk into the controller, switch to the system administrator authority, to the System Maintenance - Software Upgrade interface, long press the blank in the lower right corner of 5S, and the " Update " button pops up, jump to the upgrade interface, click " Update ", click " Update " again, and the words " Updating " appear, controller is upgrading the background
4.	When the progress bar is finished, the upgrade will be successful after the countdown of 10s and the login interface will be switched to

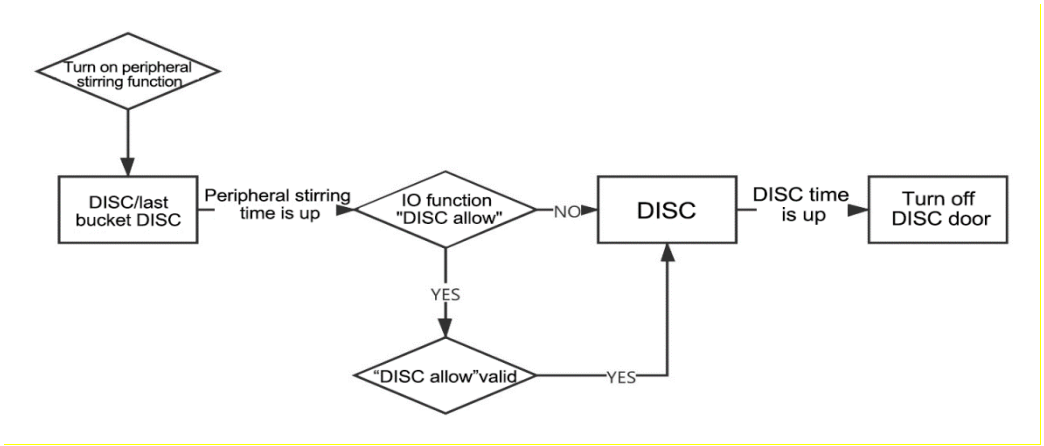
5.12U disk update boot interface

Steps as follow：

1.	Save the image file (resolution 800*480, format.bmp) into the root directory of U disk containing the project package (tpcbackup)(Note: the upgrade kit "tpcbackup" is different from this tpcbackup)
2.	Insert U disk to controller
3.	Controller pops up the display of 【USB disk k it】, and select“Update startup bitmap".
4.	Enter the LOGO selection interface, select the picture to be upgraded, and click OK. It will prompt you to restart after successful bitmap update

5.13 Peripheral stirring function

The hopper stirring function is shielded when the external stirring function is turned on. After discharge (last bucket) is completed, enter the peripheral stirring process:



Note：Mixer discharge allow two applications.

(1) When mixer is idle, as the external mixer manual discharge input, press the external mixer discharge at this time, release the external mixer to stop discharging, discharge time is determined by press time.

(2) In the process of waiting for discharging permission in the busy state of mixer, input as discharge permission of mixer, press and stop discharge after a set discharge time

5.14 Stiring Function(Original Striring Function)

If the peripheral blender switch is off,the stiring function is valid.Include two kinds of stir control mode ,Stir after fill and stir when fill.

Stir when fill

In the process of filling, When start to fill, after the stir predelay time reaches, output the mixing signal ,at the same time ,the fine flow finished. After the delay after stir time reaches, stop output the mixing signal.

Stir after fill

After finishing the result waiting, start to fill, after the stir predelay time reaches, output the mixing signal .The effective time of this signal output is the sir time. Then after the delay after stir time reaches, stop output the mixing signal.

6. Communication Description

GM9907 can support two serial ports，serial 1 and serial 2 both can choose modbus-RTU, rE-Cont(rE continue mode), rE-Read(rE command mode),tt(Toledo protocol),rS-Cont(rS continue mode),rS-Read(rS command mode),Print. Controller the first serial port is RS-232, the second serial port is RS-485.

6.1**RE protocol**

This protocol has two working mode： continue mode（**Cont**）/command mode（**Read**）.Code is **ASCII.**

6.1.1 **rE-Cont**

Continuous mode in the RE communication format. In the communication setting, the communication mode selected by serial port 1 or serial port 2 is RE-CONT protocol.In this way, there is no need to send any command to the controller, and the controller will automatically send the collected data to the host computer.The data frame format is as follows:

state	,	GW/NW	,	signal	Display value	Unit	CR	LF

Among them：

- State —— 2unit，overflow OL：(**4FH 4CH**)；stable ST：(**53H 54H**)；unstable US：(**55H 53H**)
- ， —— 1unit，separator **2CH**
- GS/NT—— 2unit，2unit，Gross weight GS（**47H 53H**），Net Weight NT（**4EH 54H**）
- Signal —— 1unit，**2BH**（+） **2DH**（-）
- Display—— 7unit，contain decimal point，when no decimal point hi way is 0
- Unit —— 2unit，**Kg (4BH 67H)**
- CR —— 1unit，**0DH**
- LF —— 1unit，**0AH**

For example, when the controller automatically sends the following frame of data

53 54 2C 47 53 2C 2B 30 31 31 2E 31 32 30 4B 67 0D 0A

Can know current controller state: stable, data is positive, current weight value is 11.120kg

6.1.2 **rE-Read**

The command mode under the RE communication format. In the communication

setting, the communication mode selected by serial port 1 or serial port 2 is RE-READ protocol.In this way, controller will only send the current data to the host when it receives the command.The format of command data frame sent by the host computer to the controller is as follows:

R	E	A	D	CR	LF
52H	**45H**	**41H**	**44H**	**0DH**	**0AH**

The format of controller response data frame is consistent with that of continuous mode data frame.

Response data format

State	,	GS/NT	+- value	Display value	unit	CR	LF

Among them:

- State —— 2unit，overflow OL：(**4FH 4CH**)；stable ST：(**53H 54H**)；Unstable US：(**55H 53H**)
- ， —— 1unit，separator **2CH**
- GS/NT—— 2unit，2unit，Gross weight GS（**47H 53H**），Net weight NT（**4EH 54H**）
- Signal —— 1unit，**2BH**（+） **2DH**（-）
- Display value—— 7unit，contain decimal point，when no decimal point hi way is 0
- Unit —— 2unit，**Kg (4BH 67H)**
- CR —— 1unit，**0DH**
- LF —— 1unit，**0AH**

For example:

Command： **52 45 41 44 0D 0A**

Respond： **53 54 2C 47 53 2C 2B 30 31 31 2E 31 32 30 4B 67 0D 0A**

Can know current controller state：stable, data value is +、current value is **11.120kg**.

6.2 **RS** protocol

This protocol has two working mode：continue mode（**Cont**）/command mode（**Read**）.Code is **ASCII**.

Note: In RS mode, all the password items are unreadable, and all the calibration items can only be modified in the stop state

6.2.1 **rS-Cont**

The continuous mode under the RS communication format. In the communication setting, the communication mode selected by serial port 1 or serial port 2 is RS-CONT protocol.In this way, there is no need to send any command to the controller and the controller will automatically send the collected data to the host computer.The data frame format is as follows:

STX	Scale No.	R	S	Supplement No.	state1	state2	G/N	+/-	Display value	CRC	CR	LF

Among them：

- **STX** —— **1**unit，start signal **02H**
- Scale No. —— **2**unit，**2**unit，range **01-99**，if **01** is **30H 31H**
- **R** —— **1**unit，**52H**
- **S** —— **1**unit，**53H**
- Supplement No. —— **2**unit，**00~04（30H 30H~30H 34H）00** means stop state
- State **1:**

D7	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
Fix 0	Fix 1	**1**—Fi-fill/ **0**—No	**1**—Me-fill/ **0**—No	**1**—Co-fill/ **0**—No	**1**—before fill/ **0**— No	**1**— pause/ **0**—No	1—Run/ 0-Stop

- State **2**:

D7	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
Fix 0	Fix 1	**1**— OFL/ **0**—No	**1**— Stable/ **0**— No	**1**—batch finish/ **0**— No	**1**— DISC/ **0**— No	**1**— WAIT/ **0**— No	1—FINISH/ 0- No

- G/N —— 1 unit, 0-GS 1-NT
- +/- —— 1unit，signal：2BH（+）、2DH（-）
- Display value —— 7unit，contain decimal point
- CRC —— 2unit，Checksum, in which all preceding values are added and converted to decimal, and then the last two digits are taken and converted to ASCII code
- CR —— 1unit，0DH
- LF —— 1unit，0AH

For example

When the controller automatically sends the following frame data:

02 30 31 52 53 30 31 79 50 41 2B 30 30 30 32 2E 30 30 30 36 0D 0A

Can know #1 controller is in 1#, Co-fill, stable, NT, display value+2.00 state.

6.2.2 **rS-Read**

The continuous mode under the RS communication format. In the communication setting, the communication mode selected by serial port 1 or serial port 2 is RS-Read protocol.In this way, controller will only send the current data to the host when it receives the command.Read different controller parameters, send different commands, get a different response format.The details are as follows:

- Host computer read out ″current state″

Command：

STX	Scale No.	R	S	CRC	CR	LF

Controller receives the correct response: Same as RS communication format continue method.

Controller receive error respond

STX	Scale No.	R	S	N	O	CRC	CR	LF

For example：

Read current state command 02 30 31 52 53 36 34 0D 0A

Controller receive correct respond： 02 30 31 52 53 30 31 79 50 41 2B 30 30 30 32 2E 30 30 30 36 0D 0A

Current controller state：1#, Co-fill, state, NT, display value+2.00

- Through host computer process” calibrate Decimal Point”

Write command：

STX	Scale No.	C	P	Decimal Point Places	CRC	CR	LF

Controller receive correct respond

STX	Scale No.	C	P	O	K	CRC	CR	LF

Controller receive error respond

STX	Scale No.	C	P	N	O	CRC	CR	LF

Among them：

- C —— 1unit，43H

- P —— 1unit，50H
- Decimal Point Places ——1unit，range 0~4
- For example：Calibrate #1 scale Decimal Point as 3

  02 30 31 43 50 33 39 37 0D 0A
- Controller receive correct respond：

  02 30 31 43 50 4F 4B 30 30 0D 0A

  means：The data written to scale 1 has been saved correctly

➢ Through host computer read “Calibrate with weight zero”

Write command：

STX	Scale No.	C	Z	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	Z	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	Z	N	O	CRC	CR	LF

Among them：

- Z —— 1unit，5AH
- For example：Add weight to No. 1 scale to mark zero

  02 30 31 43 5A 35 36 0D 0A
- Controller receives correct response：

  02 30 31 43 5A 4F 4B 31 30 0D 0A

  Means the command was executed correctly

➢ Through host computer read “Calibrate without weight zero”

Write command：

STX	Scale No.	C	Y	DDDDDD	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	Y	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	Y	N	O	CRC	CR	LF

Among them：

- Y —— 1unit，59H
- DDDDDD —— 6unit，Six millivolts corresponding to zero

- For example：Send a write zero command to controller to scale # 1
  02 30 31 43 59 30 30 31 35 30 30 34 39 0D 0A
- Controller receives correct response：
  02 30 31 43 59 4F 4B 30 39 0D 0A
  Means data written to scale 1 has been saved correctly

➢ Through host computer read "Calibrate the minimum index and the maximum range"

Write command：

STX	Scale No.	C	M	DD	DDDDDD	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	M	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	M	N	O	CRC	CR	LF

Among them：

- M —— 1 unit，4DH
- DDD —— 3 unit，1,2,5,10,20,50,100,200,500
- DDDDDD —— 6 unit，full range value
- For example：Send write index value and full range command to scale # 1
  02 30 31 43 4D 30 31 30 31 30 30 30 30 32 39 0D 0A
- Controller receives correct response：
  02 30 31 43 4D 4F 4B 39 37 0D 0A
  Means data written to scale 1 has been saved correctly

➢ Through host computer read "Weight gain calibrate"

Write command：

STX	Scale No.	C	G	DDDDDD	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	G	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	G	N	O	CRC	CR	LF

Among them：

- G —— 1 unit，47H
- DDDDDD —— 6 unit，gain value
- For example：Calibrate the gain of 10000 to # 1 scale command

  02 30 31 43 47 30 31 30 30 30 30 32 36 0D 0A
- Controller receives correct response：

  02 30 31 43 47 4F 4B 39 31 0D 0A

  Means 10000 written to scale 1 has been correctly saved

➢ "Theoretical value calibration" by host computer

Write command：

STX	Scale No.	C	L	DDDDDD	DDDDD	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	D	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	D	N	O	CRC	CR	LF

Among them：

- D —— 1 unit，44H
- For example：Send discharge operation to scale 1

  0**2 30 31 43 44 33 34 0D 0A**
- Controller receives correct response：

  02 30 31 43 44 4F 4B 38 38 0D 0A

  Means that the command was executed correctly

➢ Through host computer process **“**Manual DICS**”**

Write command：

STX	Scale No.	C	D	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	D	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	D	N	O	CRC	CR	LF

Among them：

- **D —— 1** unit，**44H**
- For example：Send discharge operation to scale 1

02 30 31 43 44 33 34 0D 0A

- Controller receives correct response：

02 30 31 43 44 4F 4B 38 38 0D 0A

Means that the command was executed correctly

➢ Through host computer write **"**Running**"**

Write command：

STX	Scale No.	C	R	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	R	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	R	N	O	CRC	CR	LF

Among them：

- R —— 1 unit，52H
- For example：Send running operation to scale 1

02 30 31 43 52 34 38 0D 0A

- Controller receives correct response：

02 30 31 43 52 4F 4B 30 32 0D 0A

Means that the command was executed correctly

➢ Through host computer write **"**STOP**"**

Write command：

STX	Scale No.	C	J	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	J	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	J	N	O	CRC	CR	LF

Among them：

- **J** —— **1**unit，**4AH**
- For example：Send stop operation to scale 1

02 30 31 43 4A 34 30 0D 0A

- Controller receives correct response：

02 30 31 43 4A 4F 4B 39 34 0D 0A

Means that the command was executed correctly

- Through host computer write "PAUSE"

Write command:

STX	Scale No.	C	S	CRC	CR	LF

Controller receives correct response:

STX	Scale No.	C	S	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	S	N	O	CRC	CR	LF

Among them:

- S —— 1 unit，53H
- For example：Send pause operation to scale 1

  02 30 31 43 53 34 39 0D 0A
- Controller receives correct response：：

  02 30 31 43 53 4F 4B 30 33 0D 0A

  Means that the command was executed correctly

- Through host computer write "TARE"

Write command:

STX	Scale No.	C	Q	CRC	CR	LF

Controller receives correct response:

STX	Scale No.	C	Q	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	Q	N	O	CRC	CR	LF

Among them:

- Q —— 1 unit，51H
- For example：Send tare operation to scale 1

  02 30 31 43 51 34 37 0D 0A
- Controller receives correct response:

  02 30 31 43 51 4F 4B 30 32 0D 0A

  Means that the command was executed correctly

- Through host computer write "Clear Tare"

Write command:

STX	Scale No.	C	O	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	O	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	O	N	O	CRC	CR	LF

Among them：

- **O** —— **1**unit，**4FH**
- For example：Send clear tare operation to scale 1

  02 30 31 43 4F 34 35 0D 0A
- Controller receives correct response：

  02 30 31 43 4F 4F 4B 39 39 0D 0A

  Means that the command was executed correctly

➢ Through host computer write **"**ZERO**"**

Write command：

STX	Scale No.	C	C	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	C	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	C	N	O	CRC	CR	LF

Among them：

- **C** —— **1** unit，**43H**
- For example：Send zero operation to scale 1

  02 30 31 43 43 33 33 0D 0A
- Controller receives correct response：

  02 30 31 43 43 4F 4B 38 37 0D 0A

  Means that the command was executed correctly

➢ Through host computer write **"**Clear Alarm**"**

Write command：

STX	Scale No.	C	B	CRC	CR	LF

Controller receives correct response：

STX	Scale No.	C	B	O	K	CRC	CR	LF

Controller receives incorrect response

STX	Scale No.	C	B	N	O	CRC	CR	LF

Among them：

- **B** —— **1** unit，**42H**
- For example：Send clear alarm operation to scale 1

  02 30 31 43 42 33 32 0D 0A
- Controller receives correct response：

  02 30 31 43 42 4F 4B 38 36 0D 0A

  Means that the command was executed correctly

6.3 **tt** Toledo protocol

In the communication setting, the communication mode selected by serial port 1 or serial port 2 is TT protocol.In this state, the controller will send data continuously in the Toledo protocol

The format of Toledo continuous transmission is as follows：

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
STX	**State A**	**State B**	**State C**	**Display weight（6unit）**						**Batch accumulate value of this time（6unit）**						**CR (calibrate and)**	

Among them：

- **Starts with standard ASII starting character 02(STX)**
- The state word A is defined as follows

D7	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
FIX 0	FIX 0	FIX **1**	Unit		Decimal point		

Among them：

Unit：

Unit	**D4**	**D3**
g	1	0

Decimal point：

Kg	0	1
t	0	0
lb	1	1

Decimal point	**D2**	**D1**	**D0**
0	0	1	0
0.0	0	1	1
0.00	1	0	0
0.000	1	0	1
0.0000	1	1	1

- The state word B is defined as follows :

D7	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
Reserved	Reserved	Reserved	Reserved	Stable	OFL	Signal	GS/NT
FIX 0	FIX 0	FIX **1**	FIX 0	**1**-Unstable/0 stable	**1**-OFL/**0**-normal	**1**-negative/**0**-positive	1-NT/0-GS

- The state word C is defined as follows:

D7	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
Binary represents supplement numbers 1-12							

For example：0000 0001 Supplement 1；0000 1100 Supplement 12

6.4 Ethernet communication

GM9907 Configuration of a network communication interface, with RJ-45 crystal head connection, to achieve communication with the host computer or PLC.Using the Modbus-TCP communication protocol, the IP address of the ethernet should be written in the network port parameters of [Maintenance] - [Communication].After the network cable is inserted, the green indicator light of the network port slot is long and bright, indicating that the network cable is well connected, and the orange indicator light flashes, indicating that network data has been received by the network card. **Modbus−TCP** addresses refer to 6.6.3 of the modbus address

6.5 Printing method

When serial port parameter port 1 or 2 choose print mode, corresponding to the serial port can be connected to a serial printer to print the contents accumulated by implementation-dependent.

Print mode communication parameters refer to serial port parameters, need to note:

1） **Baud Rate**——parameters need to consist with connected printer.

2） **Communication format**——parameters need to consist with connected printer.

Note: When printing options for Chinese language, can not use the data bits to 7 formats, otherwise there will be printing error.

3） Print format——Peripheral parameters can be setted by print format of 24 or 32 formats. Besides by peripherals parameters printing language is Chinese or English.

6.5.1Auto Print

In printing mode, the parameters of the communication automatically print ON/OFF is set to open. So after each weighing is completed, controller automatically prints the weighing result of this times. the format as follow:

English 24 print formats are as follows:

```
Batching list
Unit: kg
Recipe Number:      1
Supplement number        Result
------------------------------
 1                        5.27
 2                        2.26
                .
                .
                .
11                        3.35
12                        2.56
------------------------------
```

English 32 print formats are as follows:

```
Batching list
Unit: kg
Recipe Number: 1
Supplement number      target value                Result
--------------------------------------------------------
 1                        5.00                      5.27
 2                        2.00                      2.26
                        .
                        .
                        .
11                       3.00                      3.35
12                       2.00                      2.56
--------------------------------------------------------
```

6.5.2 Cumulative print the recipe

In printing mode, stop, click ***[Statistic]*** on the main interface. Enter the recipe ACUM interface,click ***[Data Edit]*** to chose print all recipe ACUM data. Format is as follows:

English 24 print formats are as follows:

```
All recipe ACUM list
Time: 2020/12/01 01:02
Unit: kg
------------------------------
```

Recipe Number: 1
Times: 3
Weight: 105.34

Recipe Number: 2
Times: 0
Weight: 0.00
.
.
.

Recipe Number: 20
Times: 0
Weight: 0.00

English 32 print formats are as follows:

All recipe ACUM list
Time: 2020/12/01 01:02
Unit: kg

Recipe number: 1
Times: 3
Weight: 105.34

Supplement number: 2
Times: 0
Weight: 0.00
.
.
.

Supplement number: 20
Times: 0
Weight: 0

6.5.3 All Supplement ACUM Print

In printing mode, stop, click ***[Statistic]*** on the main interface. Enter the supplement ACUM interface,click ***[Data Edit]*** to chose print all supplement ACUM data . Format is as follows:

English 24 print formats are as follows:

All supplement ACUM list
Time: 2020/12/01 01:02
Unit: kg

Supplement number: 1
Times: 3
Weight: 16.04

Supplement number: 2
Times: 3
Weight: 7.54

.
.
.

Supplement number: 12
Times: 3
Weight: 7.65

English 32 print formats are as follows:

All supplement ACUM list
Time: 2020/12/01 01:02
Unit: kg

Supplement number: 1
Times: 3
Weight: 16.04

Supplement number: 1
Times: 3
Weight: 16.04

.
.
.

Supplement number: 12
Times: 3
Weight: 7.65

6.6**Modbus-RTU** protocol

The communication mode selected in serial port 1 or serial port 2 is Modbus-RTU.

6.6.1 Function code and abnormal code

◆ Controller function codes supported：

function code	name	Explanation
03	Read register	Up to 125 single read registers
06	Write Single Register	Use this function code to write a single register
10	Write Multiple Registers	The controller supports a write command is only double register, the address must be aligned, not allowed writing only a portion of the double register is written, allowing read-only portion read out.
01	Read coil	Note that this is the bit length units
05	Write coil	

Note: The controller only supports MODBUS function code above, will not be the controller response function code to other controllers.

◆ MODBUS exception code in response to

Code	Name	Explanation
02	Illegal Data Address	For this controller, the data representing the address of the error code is an address not allowed.
03	Illegal data value	And writing the data portion of the permitted range.
04	Slave failure	When the controller is attempting to perform the requested operation, resulting in unrecoverable error.
07	Unsuccessful programming request	For controllers, the the received command can not be executed under the current conditions.

6.6.2 **MODBUS** transmission mode

The transmission mode is MODBUS RTU mode.

When communication with the RTU mode, information of each 8-bit byte is divided into two 4-bit transmission character hexadecimal.

Data Format: **8** Data bits, **1Stop** bit, even parity (**8-E-1**)

8 Data bits, **1Stop** bits, no parity (**8-N-1**)

Baud rate: **9600/19200/38400/57600/115200**(Choose one)

Code: RTU

6.6.3 **MODBUS** address assignment

Protocol address	PLC address	Meaning	Description
Statue information parameters, below contents are read only register（function codes 0x03）			
0000-0001	**40001-40002**	current display weight	current display weight
0002-0003	**40003-40004**	reserved	
0004	**40005**	Weight state sign	D13-D15: reserved
			D12：Gross/Net weight: 0. Gross weight: 1. Net weight
			D11：Calculate the weight using the theoretical value (prompt the user when calculating the weight using the theoretical value)
			D9~10：reserved
			D8：Million volt stability, (mark of million volt

			stability in calibration)
			D7：Loadcell Under，below the allowable range of Loadcell voltage
			D6：Loadcell Over，over the allowable range of Loadcell voltage
			D5：weight under，weight<“-(full range+9d)”
			D4：weight over，weight>“ full range+9d”
			D3：OFLstate，（weight or load cell abnormal)
			D2：display weight -，（display weight negative)
			D1：zero，（weight is in 0±1/4d range)
			D0：stable，（A stable mark of weight stability)
0005	**40006**	Error code 1（calibration）	D10-D15 reserved
			D12：full range write in failure
			D11：gain calibration succuss
			D10：ZERO Calibration Done
			D09：Calibration Failed-Over Min. Resolution（Each of the indices is less than 0.1uV）
			D08：Calibration Failed-Weight Input Error
			D07：Calibration Failed-Weight Input Error

			D06：Calibration Failed-Gain Votage Under Zero or previous calibration point
			D05：Calibration Failed-Gain Voltage Over
			D04：Calibration Failed-Gain Votage Under
			D03：Calibration Failed-Loadcell Not Stable
			D02：Calibration Failed-Zero Voltage Over
			D01：Calibration Failed-Gain Votage Under
			D00：Calibration Failed-Loadcell Not Stable
0006	**40007**	Error code 2 （zero and tare operation error）	D6-D15 reserved
			D05：zero load cell over
			D04：zero load cell under
			D03：zero instable
			D02：zero over range
			D01：power on zeroing instable
			D00：power on zeroing over range
0007~0009	**4008~40010**	reserved	
0010	**40011**	Process state flag bit 1, Display in order of filling state	D12-D15：reserved
			D11：Supplement 12th of Recipe filling
			D10：Supplement 11th of Recipe filling
			D09：Supplement 10th of Recipe filling
			D08：Supplement 9th of Recipe filling
			D07：Supplement 8th of Recipe filling

			D06：Supplement 7th of Recipe filling
			D05：Supplement 6th of Recipe filling
			D04：Supplement 5th of Recipe filling
			D03：Supplement 4th of Recipe filling
			D02：Supplement 3rd of Recipe filling
			D01：Supplement 2nd of Recipe filling
			D00：Supplement 1st of Recipe filling
0011	**40012**	Process state flag bit 2, Display in order of filling state	D12-D15：reserved
			D11：12th tank filling
			D10：11th tank filling
			D09：10th tank filling
			D08：9th tank filling
			D07：8th tank filling
			D06：7th tank filling
			D05：6th tank filling
			D04：5th tank filling
			D03：4th tank filling
			D02：3rd tank filling
			D01：2nd tank filling
			D00：1st tank filling
0012	**40013**	Process state flag bit 3, Display in order of filling state	D15：Done
			D14：DICS
			D13：BATCH PAUSE
			D12：STIR
			D11：Supplement filling done
			D10：Auto Compensation

			D09：Qualified (the state is closed after DICS)
			D08：UNDER pause（No pause, no alarm, then the state will be closed after DICS. If there is a clear alarm action, it will be closed after the clear alarm）
			D07：OVER pause（No pause, no alarm, then the state will be closed after DICS. If there is a clear alarm action, it will be closed after the clear alarm）
			D06：over/under detecting
			D05：reserved
			D04：value wait
			D03：fi-fill
			D02：me-fill
			D01：co-fill
			D00：pre-fill
			D15：batch complete
0014	**40015**	Process state flag bit 4, other state display areas	D04-D15：add as needed
			D03：DICS allow level
			D02：clear supplement
			D01：alarm
			D00：pause
0015~0017	**40016~40018**	reserved	
GS, NT, GS address（**read only**）			
0018	**40019**	GS Hi-Lo	GS value，have signal，INT
0019	**40020**	GS Lo-Hi	
0020	**40021**	NT Hi-Lo	NT value，have signal，INT

0021	**40022**	NT Lo-Hi	
0022	**40023**	Tare value Hi-Lo	Tare value，have signal，INT
0023	**40024**	Tare value Lo-Hi	
0024~0025	**40025~40026**	reserved	
0026	**40027**	display weight Hi-Lo	current display weight, have signal, floating-point type
0027	**40028**	display weight Lo-Hi	
0028	**40029**	Tare Hi-Lo	GS value，have signal，floating-point type
0029	**40030**	Tare Lo-Hi	
0030	**40031**	Nt Hi-Lo	NT value，have signal，floating-point type
0031	**40032**	Nt Lo-Hi	
0032	**40033**	Tare Hi-Lo	Tare value，have signal，floating-point type
0033	**40034**	Tare Lo-Hi	
0034~0035	**40035~40036**	reserved	
Load cell voltage, relative zero voltage (read only)			
0036	**40037**	Filter AD code	Filter ADC code bipolar –data with signal；unipolar-data without signal
0037	**40038**	Load cell voltage	Data with signal，integer,four digit point
0038	**40039**	Load cell voltage	
0039	**40040**	Relative zero voltage	Data with signal，integer，four digit point
0040	**40041**	Relative zero voltage	
0041~0081	**40042~40082**	reserved	
Total ACUM Times, Total ACUM Weight address（**Read only**）			
0082	**40083**	Total ACUM Times Hi-Lo	ACUM Times
0083	**40084**	Total ACUM Times Hi-Lo	
0084	**40085**	Total ACUM Times Lo-Hi	
0085	**40086**	Total ACUM Times Lo-Hi	
0086	**40087**	Total ACUM Weight Hi-Lo	Total ACUM Weight
0087	**40088**	Total ACUM Weight Hi-Lo	
0088	**40089**	Total ACUM Weight Lo-Hi	

0089	**40090**	Total ACUM Weight Lo-Hi	
0090	**40091**	reserved	
I/O Function state display address（**Read only**）			
0091	**40092**	Input state area	D12-D15 reserved
			D11: Input 12 state
			D10：Input 11 state
			D9：Input 10 state
			D8：Input 9 state
			D7：Input 8 state
			D6：Input 7 state
			D5：Input 6 state
			D4：Input 5 state
			D3：Input 4 state
			D2：Input 3 state
			D1：Input 2 state
			D0：Input 1 state
0092	**40093**	reserved	
0093	**40094**	Output state area	D15: Output 16 state
			D14：Output 15 state
			D13：Output 14 state
			D12：Output 13 state
			D11：Output 12 state
			D10：Output 11 state
			D9：Output 10 state
			D8：Output 9 state
			D7：Output 8 state
			D6：Output 7 state
			D5：Output 6 state
			D4：Output 5 state
			D3：Output 4 state
			D2：Output 3 state
			D1：Output 2 state
			D0：Output 1 state

0094~0099	**40095~40100**	reserved	
Weighing parameter，Readable and writable register（Write function code **0x06**，read function code **0x03**）			
0100-0101	**40101-40102**	PWR-ON Zero	Initial value：**20%**； range：full range **0%-99%**
0102~0103	**40103~40104**	reserved	
0104-0105	**40105-40106**	Zero Range	Initial value：**50%**； range：full range **1%-99%**
0106~0113	**40107~40114**	reserved	
0114-0115	**40115-40116**	STAB Range	Initial value：**2**； Parameter range：**0-99d**
0116-0117	**40117-40118**	STAB Time	Initial value：**0.3s**； Parameter range：**0.1-9.9**s
0118-0119	**40119-40120**	TrZero Range	Initial value：**0**； Parameter range：**0-9d**
0120-0121	**40121-40122**	TrZero Time	Initial value：**2.0s**； Parameter range：**1-99.9**s
0122-0123	**40123-40124**	D-Filter Strength	Initial value：**5**； Parameter range：**0-9**
0124-0125	**40125-40126**	Vib-Filter	Initial value：OFF； Parameter range：ON/OFF
0126-0127	**40127-40128**	AD sampling frequency	Initial value：**2**；Parameter range：**0**：**120**；**1**：**240**；**2**：**480**；**3**：**960**
Calibrate parameter，Readable and writable register（Write function code **0x06**，read function code **0x03**）			
0200-0201	**40201-40202**	Unit	Initial value：**1**； **0**—**g**，**1**—**kg**，**2**—**t**，**3**—**lb**(pound)
0202-0203	**40203-40204**	Decimal point	Initial value:**2**； Optional：**0**—**0**；**1**—**0.0**；**2**—**0.00**；**3**—**0.000**；**4**—**0.0000**。
0204-0205	**40205-40206**	Division	Initial value：1； Optional：（1/ 2/ 5/ 10/ 20/ 50/100/200/500）。

0206-0207	**40207-40208**	Full range	Initial value：10000； Write range（full range≤ Minimum Division × 100000，≤999999）
0208	**40209**	reserved	
0210-0211	**40211-40210**	Calibration Zero	Write 1 when the current weight as the zero point, the weight of the scale platform is stable to allow writing; Returns the current zero millivolt on read.
0212-0213	**40211-40212**	Cal ZERO By Valtage	The written data is used as the zero voltage value.Write data integer type, but the system regard that the data has a 4-digit decimal, read the current zero voltage
0214-0215	**40215-40216**	Calibration Weight	Input standard weight weight (≤ full range); Readout is the current load cell relative to zero millivolt
0216~0223	**40217~40224**	reserved	
0224-0225	**40225-40226**	Key In Loadcells Average Sensitive	Write the actual sensitivity of the load cell used for the theoretical value calibration
0226-0227	**40227-40228**	Key In Loadcells Total Capacity	Write the total capacity of the load cell for the theoretical calibration
0228-0229	**40229-40230**	Theoritical Calibration In Use	Write 1 use the theoretical value calibration, write 0 use the calibration data.
0230-0231	**40231-40232**	Weight Correct Coefficient/WT Correct	Write the coefficient to modify the calibration, write the data integer type, the system default data write data with 5 decimal

			point.
0232~0299	**40233~40300**	reserved	
Recipe parameter，Readable and writable register（Write function code **0x06**，read function code **0x03**）			
0300-0301	**40301-40302**	Recipe ID	Initial value：1； Parameter range：1~20
0302-0303	**40303-40304**	Supplement type quantity	Initial value：12； Parameter range：0~12 If the sum of the unclosed sequence of supplements below does not equal to this data, it will not be allowed to run and alarm.
0304-0305	**40305-40306**	The tank number of the 1st kind of supplement in the recipe	Initial value：1； Parameter range：0~12. 0 is skipped, and 1~12 denotes the jar number for filling.
0306-0307	**40307-40308**	The tank number of the 2nd kind of supplement in the recipe	
0308-0309	**40309-40310**	The tank number of the 3rd kind of supplement in the recipe	
0310-0311	**40311-40312**	The tank number of the 4th kind of supplement in the recipe	
0312-0313	**40313-40314**	The tank number of the 5th kind of supplement in the recipe	
0314-0315	**40315-40316**	The tank number of the 6th kind of supplement in the recipe	
0316-0317	**40317-40318**	The tank number of the 7th kind of supplement in the recipe	
0318-0319	**40319-40320**	The tank number of the 8th kind of supplement in the recipe	

0320-0321	**40321-40322**	The tank number of the 9th kind of supplement in the recipe	
0322-0323	**40323-40324**	The tank number of the 10th kind of supplement in the recipe	
0324-0325	**40325-40326**	The tank number of the 11th kind of supplement in the recipe	
0326-0327	**40327-40328**	The tank number of the 12th kind of supplement in the recipe	
0328-0329	**40329-0330**	Batch times	Initial value：0； Parameter range：0~9999
0330-0331	**0331-0332**	Number of remaining batches	Ready only
0332~0339	**40333~40341**	reserved	
0340-0341	**40341-40342**	No.1 supplement target value	Note：The write value value should ≤full range.
0342-0343	**40343-40344**	No.1 supplement Co-Fill Remain	
0344-0345	**40345-40346**	No.1 supplementMe-Fill Remain	
0346-0347	**40347-40348**	No.1 supplement Free Fall value	
0348-0349	**40349-40350**	No.1 supplement OVER value	
0350-0351	**40351-40352**	No.1 supplement UNDER value	
0352-0353	**40353-40354**	No.1 supplement Filling PreDelay Timer	
0354-0355	**40355-40356**	No.1 supplement COMP.Inhibit Timer(Co-F)	
0356-0357	**40357-40358**	No.1 supplement COMP.Inhibit Timer(Me-F)	

0358-0359	**40359-40360**	No.1 supplement COMP.Inhibit Timer(Fi-F)	
0360-0361	**40361-40362**	No.1 supplement Pause mode	
0362-0363	**40363-40364**	No.1 supplement Stir mode	
0364-0365	**40365-40366**	No.1 supplement Stir PreDelay	
0366-0367	**40367-40368**	No.1 supplement Stir Time	
0368-0369	**40369-40370**	No.1 supplement Delay After Stir	
0370~0379	**40371~40380**	reserved	
0380~0419	**40381~40420**	No.2 supplement recipe contents	sequence as above
0420~0459	**40421~40460**	No.3 supplement recipe contents	sequence as above
0460~0499	**40461~40500**	No.4 supplement recipe contents	sequence as above
0500~0539	**40501~40540**	No.5 supplement recipe contents	sequence as above
0540~0579	**40541~40580**	No.6 supplement recipe contents	sequence as above
0580~0619	**40581~40620**	No.7 supplement recipe contents	sequence as above
0620~0659	**40621~40660**	No.8 supplement recipe contents	sequence as above
0660~0699	**40661~40700**	No.9 supplement recipe contents	sequence as above
0700~0739	**40701~40740**	No.10 supplement recipe contents	sequence as above
0740~0779	**40741~40780**	No.11 supplement recipe contents	sequence as above
0780~0819	**40781~40820**	No.12 supplement recipe contents	sequence as above

0820-0821	**40821-40822**	Power Loss Resume	Initial value：OFF； Parameter range：OFF/ON
0822-0823	**40823-40824**	Continuous Batching ON/OFF	Initial value：OFF； Parameter range：OFF/ON
0824-0825	**40825-40826**	Weight Prepare For Fill	Initial value：OFF； Parameter range：OFF/ZERO, TARE
0826-0827	**40827-40828**	Tare Range Control ON/OFF	Initial value：OFF； Parameter range：OFF/ON
0828-0829	**40829-40830**	Tare Up Limit	Initial value：0； Parameter range：0~999999
0830-0831	**40831-40832**	Tare Low Limit	Initial value：0； Parameter range：0~999999
0832-0833	**40833-40834**	Fill Speed Control	Initial value：0-Combination； Parameter range：0-Combination，1-Sequence，2- Optimized
0834-0835	**40835-40836**	Pause Time（Co-F→Me-F）	Initial value：0；Parameter range：0~999
0836-0837	**40837-40838**	Pause Time（Me-F→Fi-F）	Initial value：0；Parameter range：0~999
0838-0839	**40839-40840**	JogFlow ON/OFF	Initial value：OFF；range：OFF/ON
0840-0841	**40841-40842**	JogFlow ON Timer	Initial value：5；range：0~999
0842-0843	**40843-40844**	JogFlow OFF Timer	Initial value：5；range：0~999
0844-0845	**40845-40846**	Free fall correction Reference Samples PCS	Initial value：1；range：0~99
0846-0847	**40847-40848**	Free fall correction Effective Range	Initial value：2；range：0~99
0848-0849	**40849-40850**	Free fall correction Percentage	Initial value：1；range：0~2
0850-0851	**40851-40852**	Result Waiting Timer	Initial value：5；range：0~999
0852-0853	**40853-4854**	OVER/UNDER Check	Initial value：OFF；range：

			OFF/ON
0854-0855	**40855-40856**	OVER/UNDER Pause	Initial value：OFF；range：OFF/ON
0856-0857	**40857-40858**	OVER/UNDER Alarm Timer	Initial value：5；range：0~999
0858-0859	**40859-40860**	Compensation Times	Initial value：3；range：0~99
0860-0861	**40861-40862**	Fill-ON Timer	Initial value：5；range：0~999
0862-0863	**40863-40864**	Fill-OFF Timer	Initial value：5；range：0~999
0864-0865	**40865-40866**	DISC mode option	Initial value：0；DISC after all batching complete 1:Discharge after each feeding
0866-0867	**40867-40868**	DISC Control	Initial value：OFF；range：OFF/ON
0868-0869	**40869-40870**	Near Zero Band	Initial value：0；range：0~999999
0870-0871	**40871-40872**	DISC Delay Timer	Initial value：5；range：0~999
0872-0873	**40873-40874**	DISC Monitor Time	Initial value：0；range：0~999
0874-0875	**40875-40876**	Batching Monitor Time	Initial value：0；range：0~999
0876~0877	**40877~40878**	reserved	
0878-0879	**40879-40880**	Current supplement No.	ready only
0880-0881	**40881-40882**	Gross Sign Correction	Initial value：OFF；range：OFF/ON
0882-0883	**40883-40884**	Peripheral mixer	Initial value：OFF；range：OFF/ON
0884-0885	**40885-40886**	Peripheral stirring timer	Initial value：5；range：0~999
0886-0887	**40887-40888**	DISC timer	Initial value：5；range：0~999
0888-0889	**40889-40890**	Delay after DISC	Initial value：5；range：0~999

0890-0891	**40891-40892**	STAB Prepare For Changing	Initial value：OFF； option：ON/OFF
0892~0893	**40893-40894**	Stirring switch during discharging	Initial value：0- OFF； option：0- OFF -1- ON
0894~4989	**40895~44900**	reserved	
All supplement ACUM weight，below parameter ready only			
4900-4903	**44901-44904**	The ACUM weight of the current recipe supplement 1	ready only
4904-4907	**44905-44908**	The ACUM weight of the current recipe supplement 2	ready only
4908-4911	**44909-44912**	The ACUM weight of the current recipe supplement 3	ready only
4912-4915	**44913-44916**	The ACUM weight of the current recipe supplement 4	ready only
4916~4919	**44917~44920**	The ACUM weight of the current recipe supplement 5	ready only
4920-4923	**44921-44924**	The ACUM weight of the current recipe supplement 6	ready only
4924-4927	**44925-44928**	The ACUM weight of the current recipe supplement 7	ready only
4928-4931	**44929-44932**	The ACUM weight of the current recipe supplement 8	ready only
4932-4935	**44933-44936**	The ACUM weight of the current recipe supplement 9	ready only
4936-4939	**44937-44940**	The ACUM weight of the current recipe supplement 10	ready only
4940-4943	**44941-44944**	The ACUM weight of the current recipe supplement 11	ready only
4944-4947	**44945-44948**	The ACUM weight of the current recipe supplement 12	ready only
4948-4949	**44949-44950**	The actual batch value of this supplement 1	ready only
4950-4951	**44951-44952**	The actual batch value of this supplement 2	ready only
4952-4953	**44953-44954**	The actual batch value of this supplement 3	ready only
4954-4955	**44955-44956**	The actual batch value of this	ready only

		supplement 4	
4956-4957	**44957-44958**	The actual batch value of this supplement 5	ready only
4958-4959	**44959-44960**	The actual batch value of this supplement 6	ready only
4960-4961	**44961-44962**	The actual batch value of this supplement 7	ready only
4962-4963	**44963-44964**	The actual batch value of this supplement 8	ready only
4964-4965	**44965-44966**	The actual batch value of this supplement 9	ready only
4966-4967	**44967-44968**	The actual batch value of this supplement 10	ready only
4968-4969	**44969-44970**	The actual batch value of this supplement 11	ready only
4970-4971	**44971-44972**	The actual batch value of this supplement 12	ready only
4972-4973	**44973-44974**	Clear recipe ACUM	Write **1-20 to** clear the Recipe ID ACUM; Write **100 to** Clear Choose Recipe ACUM; Write **101** to Clear All Recipe ACUM.
4974~4999	**44975~45000**	reserved	
ACUM parameter，ready only register（read function code 0x03）			
5000-5001	**45001-45002**	1 recipe supplement 1 ACUM weight HI-LO	ready only
5002-5003	**45003-45004**	1 recipe supplement 1 ACUM weight LO-HI	ready only
5004-5005	**45005-45006**	1 recipe supplement 1 ACUM times	ready only
5006-5007	**45007-45008**	1 recipe supplement 2 ACUM weight HI-LO	ready only
5008-5009	**45009-45010**	1 recipe supplement 2 ACUM weight LO-HI	ready only
5010-5011	**45011-45012**	1 recipe supplement 2 ACUM times	ready only

5012-5013	**45003-45014**	1 recipe supplement 3 ACUM weight HI-LO	ready only
5014-5015	**45015-45016**	1 recipe supplement 3 ACUM weight LO-HI	ready only
5016-5017	**45017-45018**	1 recipe supplement 3 ACUM times	ready only
5018-5019	**45019-45020**	1 recipe supplement 4 ACUM weight HI-LO	ready only
5020-5021	**45021-45022**	1 recipe supplement 4 ACUM weight LO-HI	ready only
5022-5023	**45023-45024**	1 recipe supplement 4 ACUM times	ready only
5024-5025	**45025-45026**	1 recipe supplement 5 ACUM weight HI-LO	ready only
5026-5027	**45027-45028**	1 recipe supplement 5 ACUM weight LO-HI	ready only
5028-5029	**45029-45030**	1 recipe supplement 5 ACUM times	ready only
5030-5031	**45031-45032**	1 recipe supplement 6 ACUM weight HI-LO	ready only
5032-5033	**45033-45034**	1 recipe supplement 6 ACUM weight LO-HI	ready only
5034-5035	**45035-45036**	1 recipe supplement 6 ACUM times	ready only
5036-5037	**45037-45038**	1 recipe supplement 7 ACUM weight HI-LO	ready only
5038-5039	**45039-45040**	1 recipe supplement 7 ACUM weight LO-HI	ready only
5040-5041	**45041-45042**	1 recipe supplement 7 ACUM times	ready only
5042-5043	**45043-45044**	1 recipe supplement 8 ACUM weight HI-LO	ready only
5044-5045	**45045-45046**	1 recipe supplement 8 ACUM weight LO-HI	ready only
5046-5047	**45047-45048**	1 recipe supplement 8 ACUM times	ready only
5048-5049	**45049-45050**	1 recipe supplement 9	ready only

		ACUM weight HI-LO	
5050-5051	**45051-45052**	1 recipe supplement 9 ACUM weight LO-HI	ready only
5052-5053	**45053-45054**	1 recipe supplement 9 ACUM times	ready only
5054-5055	**45055-45056**	1 recipe supplement 10 ACUM weight HI-LO	ready only
5056-5057	**45057-45058**	1 recipe supplement 10 ACUM weight LO-HI	ready only
5058-5059	**45059-45060**	1 recipe supplement 10 ACUM times	ready only
5060-5061	**45061-45062**	1 recipe supplement 11 ACUM weight HI-LO	ready only
5062-5063	**45063-45064**	1 recipe supplement 11 ACUM weight LO-HI	ready only
5064-5065	**45065-45066**	1 recipe supplement 11 ACUM times	ready only
5066-5067	**45067-45068**	1 recipe supplement 12 ACUM weight HI-LO	ready only
5068-5069	**45069-45070**	1 recipe supplement 12 ACUM weight LO-HI	ready only
5070-5071	**45071-45072**	1 recipe supplement 12 ACUM times	ready only
5072-5073	**45073-45074**	1 recipe total ACUM weight	ready only
5074-5075	**45075-45076**	1 recipe total ACUM times	ready only
5076~5099	**45077~45100**	reserved	
5100-5199	**45101-45200**	2 recipe ACUM data	ready only
5200-5299	**45201-45300**	3 recipe ACUM data	ready only
5300-5399	**45301-45400**	4 recipe ACUM data	ready only
5400-5499	**45401-45500**	5 recipe ACUM data	ready only
5500-5599	**45501-45600**	6 recipe ACUM data	ready only
5600-5699	**45601-45700**	7 recipe ACUM data	ready only
5700-5799	**45701-45800**	8 recipe ACUM data	ready only
5800-5899	**45801-45900**	9 recipe ACUM data	ready only
5900-5999	**45901-46000**	10 recipe ACUM data	ready only

6000-6099	**46001-46100**	11 recipe ACUM data	ready only
6100-6199	**46101-46200**	12 recipe ACUM data	ready only
6200-6299	**46201-46300**	13 recipe ACUM data	ready only
6300-6399	**46301-46400**	14 recipe ACUM data	ready only
6400-6499	**46401-46500**	15 recipe ACUM data	ready only
6500-6599	**46501-46600**	16 recipe ACUM data	ready only
6600-6699	**46601-46700**	17 recipe ACUM data	ready only
6700-6799	**46701-46800**	18 recipe ACUM data	ready only
6800-6899	**46801-46900**	19 recipe ACUM data	ready only
6900-6999	**46901-47000**	20 recipe ACUM data	ready only
IO parameter，Readable and writable register（Write function code **0x06**, read function code **0x03**）			
7000-7001	**47001-47002**	Input 1 function	IO input function define： 0：no define； 1：start； 2：stop； 3：E-Stop； 4：pause； 5：ZERO； 6：clear alarm； 7：Change Recipe； 8：M-Disc/DISC Permission； 9：TARE； 10：Clear tare； 11：Start/Stop； 12：Manual Stir 13：Allow release 14：Print All Supplement ACUM Data 15：Print All Recipe 16：Manual discharging 17：Material level ACUM Data
7002-7003	**47003-47004**	Input 2 function	
7004-7005	**47005-47006**	Input 3 function	
7006-7007	**47007-47008**	Input 4 function	
7008-7009	**47009-47010**	Input 5 function	
7010-7011	**47011-47012**	Input 6 function	
7012-7013	**47013-47014**	Input 7 function	
7014-7015	**47015-47016**	Input 8 function	
7016-7017	**47017-47018**	Input 9 function	
7018-7019	**47019-47020**	Input 10 function	
7020-7021	**47021-47022**	Input 11 function	
7022-7023	**47023-47024**	Input 12 function	
7024~7099	**47025~47100**	reserved	
7100-7101	**47101-47102**	Output 1 function	IO output function define： 0：no define； 1：Running；
7102-7103	**47103-47104**	Output 2 function	
7104-7105	**47105-47106**	Output 3 function	

7106-7107	**47107-47108**	Output 4 function	2：stop； 3：Co-Fill； 4：Me-Fill； 5：Fi-Fill； 6：1st Supplement； 7：2nd Supplement； 8：3rd Supplement； 9：4th Supplement； 10：5th Supplement； 11：6th Supplement； 12：7th Supplement； 13：8th Supplement； 14：9th Supplement； 15：10th Supplement； 16：11th Supplement； 17：12th Supplement； 18：Result Waiting 19：Over/Under； 20：Over； 21：Under； 22：DICS； 23：NearZero； 24：STAB； 25：Alarm； 26：Batch Complete； 27：pause； 28：Batch Done 29：DICS Done； 30：Stir： 31：OFL； 32：ZERO Failed； 33：Blender Release
7108-7109	**47109-47110**	Output 5 function	
7110-7111	**47111-47112**	Output 6 function	
7112-7113	**47113-47114**	Output 7 function	
7114-7115	**47115-47116**	Output 8 function	
7116-7117	**47117-47118**	Output 9 function	
7118-7119	**47119-47120**	Output 10 function	
7120-7121	**47121-47122**	Output 11 function	
7122-7123	**47123-47124**	Output 12 function	
7124-7125	**47125-47126**	Output 13 function	
7126-7127	**47127-47128**	Output 14 function	
7128-7129	**47129-47130**	Output 15 function	
7130-7131	**47131-47132**	Output 16 function	
7132~7999	**47133~48000**	reserved	
Communication parameter, Readable and writable register（Write function code **0x06**, read function code **0x03**）			
8000	**48001**	485COM ID	Initial value：**1**；**1~99**option
8001	**48002**	Baudrate	**0**：**9600**； **1**：**19200**；

			2：38400； **3：57600；** **4：115200**
8002	**48003**	Protocol	**0：Modbus-RTU ；** **1：rE-Cont；** **2：rE-Read；** **3：tt；** **4：rS-Cont；** **5：rS-Read；** **6：Print；**
8003	**48004**	Data Format	Communication data format option.（data bit, check bit, stop bit. **E**：even check；**N**：no check） **0：8-E-1；** **1：8-N-1；** **2：7-E-1；** **3：7-N-1**
8004	**48005**	Modbus Dword Format	Initial value：**0：AB-CD**； range：**0-1** **0：AB-CD**； **1：CD – AB**
8005	**48006**	Send Interval	Continuous mode automatically sends time intervals，unit **ms** Initial value：**50**；**0~1000** option
8006	**48007**	Send ChecksumONOFF	**tt**(Toledo continuous mode)protocol Send Checksum or not **0**：don’t Send Checksum； **1**：Send Checksum
8007~8019	**48008~48020**	reserved	
8020	**48021**	232COM ID	Initial value：**1**；**1~99**option
8021	**48022**	Baudrate	**0：9600；** **1：19200；** **2：38400；** **3：57600；**

			4：115200
8022	**48023**	Protocol	**0：Modbus-RTU ；** **1：rE-Cont;** **2：rE-Read;** **3：tt;** **4：rS-Cont;** **5：rS-Read;** **6：Print;**
8023	**48024**	Data Format	Communication data format option.（data bit, check bit, stop bit. **E**：even check；**N**：no check） **0：8-E-1;** **1：8-N-1;** **2：7-E-1;** **3：7-N-1.**
8024	**48025**	ModbusDword Format	Initial value：**0：AB-CD**； range：**0-1** **0：AB-CD**; **1：CD – AB**
8025	**48026**	Continuous Send Interval	Continuous mode automatically sends time intervals，unit **ms** Initial value：**50**；**0~1000** option
8026	**48027**	Send ChecksumONOFF	**tt**(Toledo continuous mode)protocol Send Checksum or not **0**：don't Send Checksum；**1**：Send Checksum
8027~8099	**48028~48100**	reserved	
8100	**48101**	Protocol	Modbus-TCP
8101	**48102**	Ethernet Dword Format	Initial value：**0：AB-CD**； range：**0-1** **0：AB-CD**; **1：CD - AB**。
8102	**48103**	reserved	
8103	**48104**	IP1	default**192**，range**0~255**

8104	**48105**	IP2	default**168**，range**0~255**
8105	**48106**	IP3	default**101**，range**0~255**
8106	**48107**	IP4	default**246**，range**0~255**
8107~8149	**48108~48150**	reserved	
8150	**48151**	Auto print ON/OFF	Initial value: 0. 1: ON, 0: OFF
8151	**48152**	Print format	Initial value: 0 0: 24 lines 1: 32 lines
8152	**48153**	Print language	Initial value: 0.1: English: 0: Chinese
8153	**48154**	Print lines	Initial value: 3, 0-9
8154	**48155**	Print all recipe ACUM	Write 1 to print
8155	**48156**	Print all supplement ACUM	Write 1 to print
8156~8299	**48157~48300**	reserved	
IO Test			
8300	**48301**	IO test mode	Write：stop state can write in **1**start I/O Module test ； input **0** exit I/O Module test state (only in stop state can be revised） Read：**1**：I/O Module test state **0**：Non I/O Module test state
8301	**48302**	Input 1 test	Write：not allow write in Read: From Hi to lo respectively correspond **IN1~12** input.**1** input valid，**0** input invalid.
8302	**48303**	Input 2 test	
8303	**48304**	Input 3 test	
8304	**48305**	Input 4 test	
8305	**48306**	Input 5 test	
8306	**48307**	Input 6 test	
8307	**48308**	Input 7 test	
8308	**48309**	Input 8 test	
8309	**48310**	Input 9 test	
8310	**48311**	Input 10 test	
8311	**48312**	Input 11 test	

8312	**48313**	Input 12 test	
8313~8349	**48314~48350**	reserved	
8350	**48351**	Input 1 test	Write：I/O Module test ,ON/OFF turn to ON can write，From Lo to Hi respectively correspond **OUT1~16** output. **1**output valid，**0** output invalid. Read：exit current output, I/O Module port state，From Lo to Hi respectively correspond **OUT1~16** output. **1** output valid，**0** output invalid.
8351	**48352**	Input 2 test	
8352	**48353**	Input 3 test	
8353	**48354**	Input 4 test	
8354	**48355**	Input 5 test	
8355	**48356**	Input 6 test	
8356	**48357**	Input 7 test	
8357	**48358**	Input 8 test	
8358	**48359**	Input 9 test	
8359	**48360**	Input 10 test	
8360	**48361**	Input 11 test	
8361	**48362**	Input 12 test	
8362	**48363**	Input 13 test	
8363	**48364**	Input 14 test	
8364	**48365**	Input 15 test	
8365	**48366**	Input 16 test	
8366~8599	**48367~48600**	reserved	
Running parameter, Readable and writable register（Write function code **0x06,** read function code **0x03**）			
8600	**48601**	ZERO	write non 0 can ZERO
8601	**48602**	TARE	write non 0 can TARE
8602	**48603**	Clear tare	write non 0 can Clear tare
8603	**48604**	reserved	
8604	**48605**	Quick zero	write non 0 can zero calibration
8605	**48606**	reserved	
8606	**48607**	start	write non 0 can start controller
8607	**48608**	E-Stop	write non 0 can E-Stop controller
8608	**48609**	to stop	write non 0 can to stop controller
8609	**48610**	pause（pulse）	write non 0 can pause controller

8610	**48611**	reserved	
8611	**48612**	reserved	
8612	**48613**	reserved	
8613	**48614**	clear alarm	write non 0 can clear Alarm
8614	**48615**	M-Disc/DISC Permission	write non 0 can DICS
8615	**48616**	Change recipe	write non 0 can change recipe（Write the recipe each time and add 1 in order）
8616	**48617**	Clear ACUM	write non 0 can clear total ACUM and ACUM times
8617	**48618**	Clear supplement 1	write non 0 can clear supplement 1
8618	**48619**	Clear supplement 2	write non 0 can clear supplement 2
8619	**48620**	Clear supplement 3	write non 0 can clear supplement 3
8620	**48621**	Clear supplement 4	write non 0 can clear supplement 4
8621	**48622**	Clear supplement 5	write non 0 can clear supplement 5
8622	**48623**	Clear supplement 6	write non 0 can clear supplement 6
8623	**48624**	Clear supplement 7	write non 0 can clear supplement 7
8624	**48625**	Clear supplement 8	write non 0 can clear supplement 8
8625	**48626**	Clear supplement 9	write non 0 can clear supplement 9
8626	**48627**	Clear supplement 10	write non 0 can clear supplement 10
8627	**48628**	Clear supplement 11	write non 0 can clear supplement 11
8628	**48629**	Clear supplement 12	write non 0 can clear supplement 12
8629	**48630**	Power off save recovery	power off save turn to

		inquiry	ON，write non 0 can power off recovery
8630	**48631**	Stir	write non 0 can turn on Manual Stir
8631~8999	**48632~49000**	reserved	
Reset parameter, Readable and writable register（Write function code **0x06,** read function code **0x03**）			
8900	**48901**	All	Write 1，read 0
8901	**48902**	part（all but do not include calibration）	
8902	**48903**	calibration parameter reset	
8903	**48904**	Weighing parameter reset（basic parameters of the transmitter class）	
8904	**48905**	All I/O function reset	
8905	**48906**	All communication parameter reset	
8906	**48907**	All recipe parameter reset	
8907	**48908**	All ACUM parameter reset	
8908~9999	**48909~410000**	reserved	
Software version etc ready only parameter			
10000	**410001**	version（Hi-Lo）	read only
10001	**410002**	version（Lo-Hi）	
10002	**410003**	Compile Date（Hi-Lo）	
10003	**410004**	Compile Date（Lo-Hi）	
10029	**410030**	reserved	
10004~10099	**410005~410100**	reserved	
10100	**410101**	Ethernet 0 controller Mac address 1，0-255	read only
10101	**410102**	Ethernet 0 controller Mac address 2，0-255	

10102	**410103**	Ethernet 0 controller Mac address 3，0-255	
10103	**410104**	Ethernet 0 controller Mac address 4，0-255	
10104	**410105**	Ethernet 0 controller Mac address 5，0-255	
10105	**410106**	Ethernet 0 controller Mac address 6，0-255	
10106~	**410107~**	reserved	
Coil address， Readable and writable coil（Write function code **0x05，** read function code **0x01**）			
0	**1**	ZERO	This address can only write 1. Read 0
1	**2**	TARE	
2	**3**	Clear tare	
3	**4**	reserved	
4	**5**	Quick zero	This address can only write 1. Read :valid=0001H; invalid=000H
5	**6**	reserved	
6	**7**	start	
7	**8**	E-Stop	
8	**9**	stop	
9	**10**	pause（pulse）	
10~12	**11~13**	reserved	
13	**14**	clear alarm	This address can only write 1. Read 0
14	**15**	M-Disc/DISC Permission	This address can only write 1. Read :valid=0001H; invalid=000H
15	**16**	Change recipe	This address can only write 1. Read 0
16	**17**	Clear ACUM	This address can only write 1. If the accumulative times is not 0,it is read as 1,otherwise it is 0
17	**18**	Clear supplement 1	Write 1 to clear supplement, read as 1; Write 0 ,close clearing
18	**19**	Clear supplement 2	
19	**20**	Clear supplement 3	

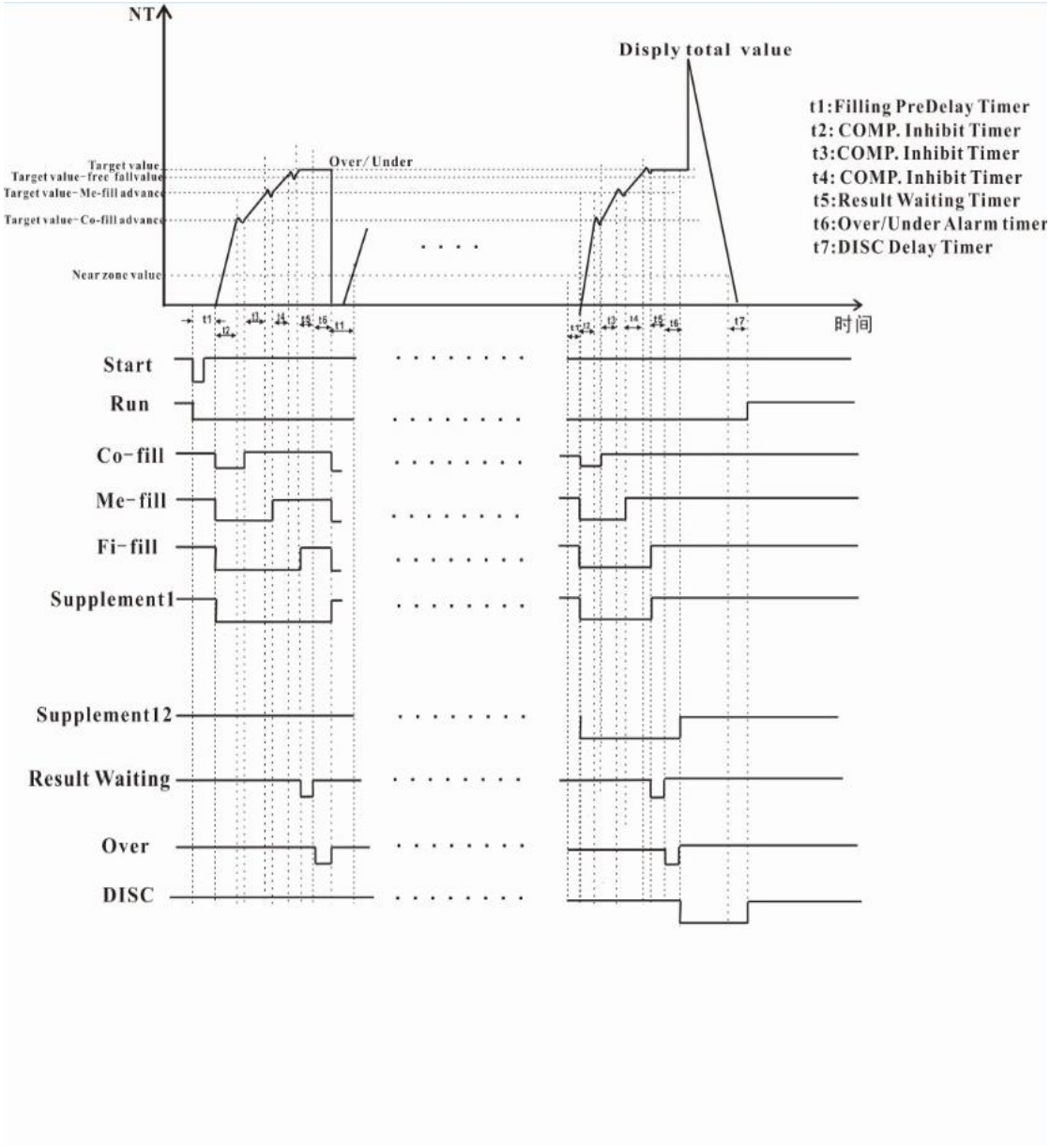
20	**21**	Clear supplement 4	supplement function, read as 0; (Note,only single supplement can be cleared)
21	**22**	Clear supplement 5	
22	**23**	Clear supplement 6	
23	**24**	Clear supplement 7	
24	**25**	Clear supplement 8	
25	**26**	Clear supplement 9	
26	**27**	Clear supplement 10	
27	**28**	Clear supplement 11	
28	**29**	Clear supplement 12	
29	**30**	Power off save recovery inquiry	Read 1: Restore power? Write 1: recovery; Write 0: no recovery
30	**31**	Stir	This address can only write 1. Read :valid=0001H; invalid=000H
31~299	**32~300**	reserved	
300	**301**	Input 1 state	read only
301	**302**	Input 2 state	
302	**303**	Input 3 state	
303	**304**	Input 4 state	
304	**305**	Input 5 state	
305	**306**	Input 6 state	
306	**307**	Input 7 state	
307	**308**	Input 8 state	
308	**309**	Input 9 state	
309	**310**	Input 10 state	
310	**311**	Input 11 state	
311	**312**	Input 12 state	
312~349	**313~350**	reserved	
350	**351**	Output 1 state	read only
351	**352**	Output 2 state	
352	**353**	Output 3 state	
353	**354**	Output 4 state	
354	**355**	Output 5 state	
355	**356**	Output 6 state	
356	**357**	Output 7 state	

357	**358**	Output 8 state	
358	**359**	Output 9 state	
359	**360**	Output 10 state	
360	**361**	Output 11 state	
361	**362**	Output 12 state	
362	**363**	Output 13 state	
363	**364**	Output 14 state	
364	**365**	Output 15 state	
365	**366**	Output 16 state	
366~	**367~**	reserved	

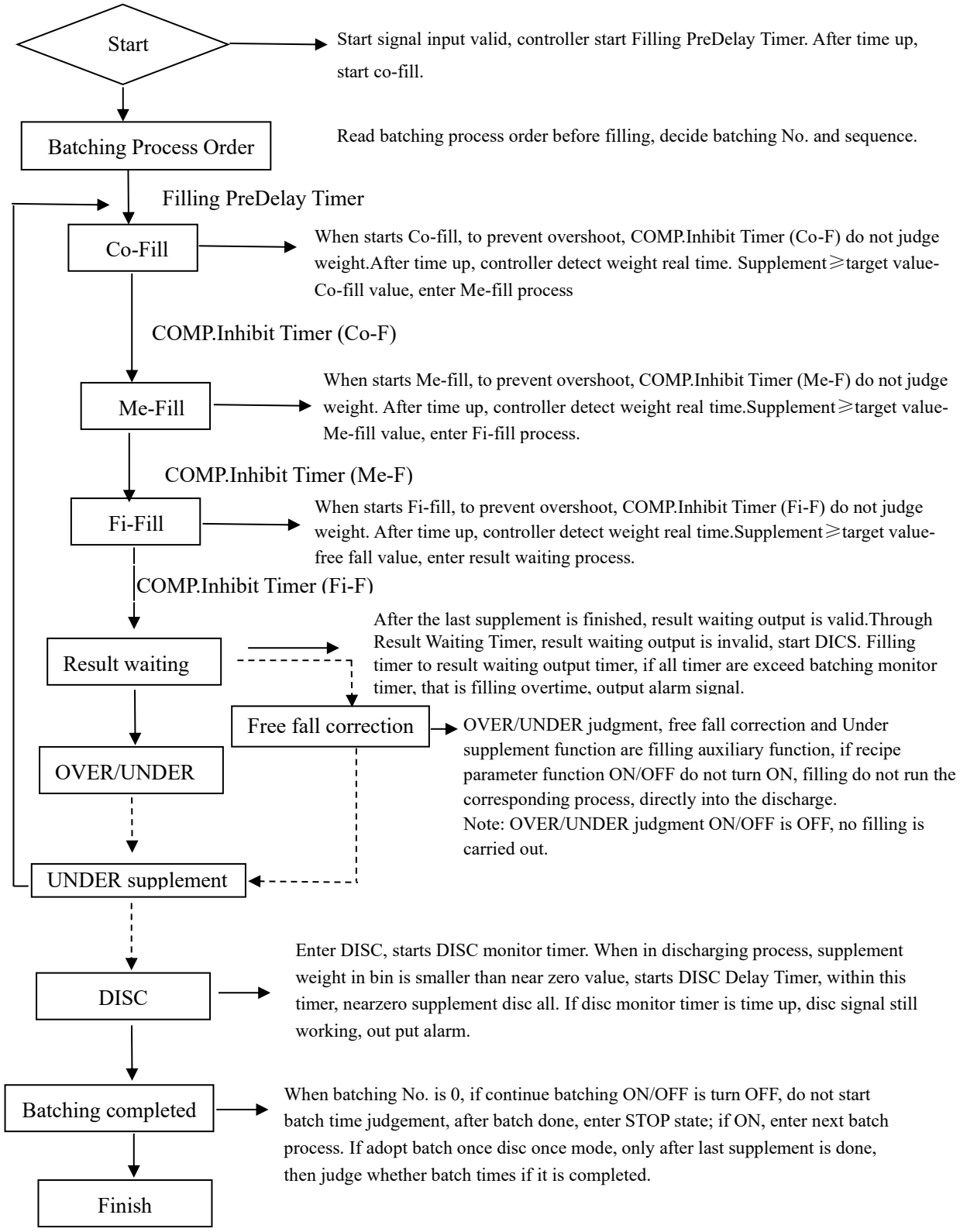
7. Auto batching process

Before the automatic batching operation, user needs to configure the related parameter in the batching process.After the configuration is complete, the automatic batching process will proceed according to the user-defined configuration.

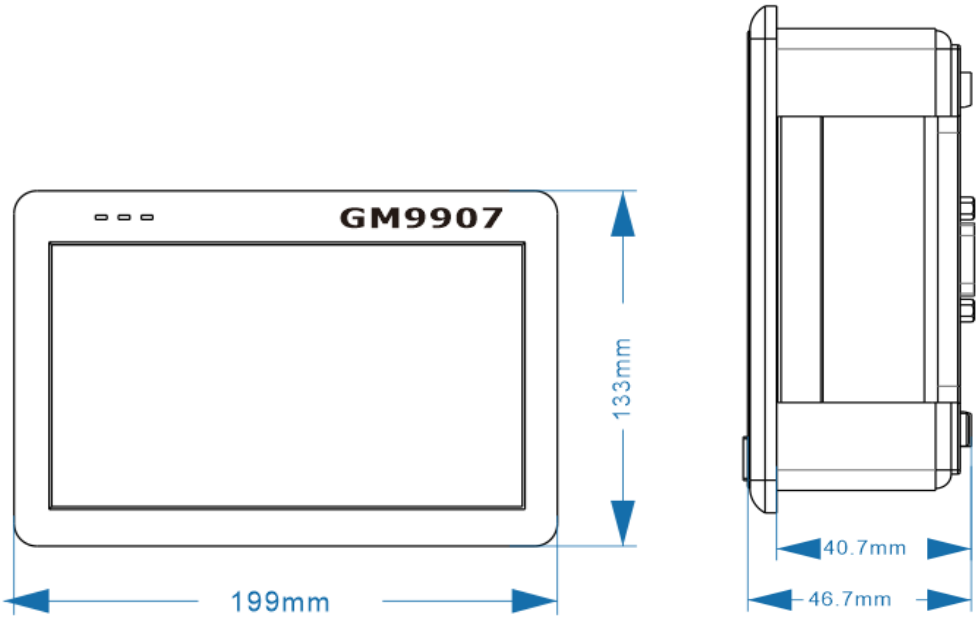
7.1 Auto batching sequence



7.2 Basic process description：



8. Dimension (mm)



ON hole size