GENERAL MEASURE

杰 • 曼 • 科 • 技

GMC-X1LF

User Manual

110612010003

V01.10.11

 **Warnings**	The product is powered by **DC24V power** supply, misuse of **AC220V power supply will permanently** damage the instrument.
	Keep the instrument well grounded.
	The product is an electrostatic sensitive device. Take ESD measures during use and maintenance

Standards & Certifications	Product standard: **GB/T 7724-2023** **Verification Regulation: JJG 649-2016** **CMC accuracy** grade 3 (6000e)**; Guangdong system** 0000000048**;** Safety certification: **CE**

Contents

Chapter 1 Overview

1.1 Functions **and features**

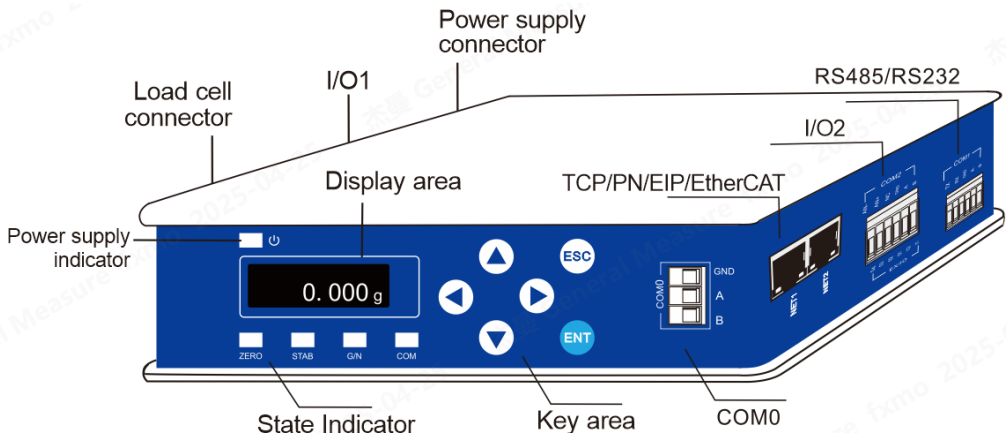
Shell Type	**DIN** rail mount, stainless steel housing	
loadcell interface	**1 way** 6-wire analog loadcell interface for up to **8** 350Ω loadcells	
Display	**128*32** 0.91 **"white light** OLED	
Language	Chinese and English are supported	
Scale structure	Single increment, Multi increment, Multi reduction, three modes are available.	
Interface	**1** way **485** interface, **1** way **485/232** interface	
	Support **5** in **9** out transistor input/output interface	
	Optional interface	Dual network port with built-in switch
		Single network port communication port
		Profinet Bus interface
		Ethernet/IP bus interface
		EtherCAT bus interface

1.2 Technical **Specifications**

Power supply	**24VDC** (**18 to 30VDC**)
Housing size	**131 * 111.4 * 32** (**mm**)
Product weight	**500g**
Certified use environment	**-10 ~ 40℃;** No condensation in 90%R.H
Use environment	**-20 ~ 60℃;** No condensation in 90%R.H
Storage environment	**-40 to 60 ° C;** No condensation in 90%R.H
Power dissipation	**5W**
Load cell excitation voltage	**5V 200mA**(**MAX**)
Load cell requirements	**1** analog loadcell interface, up to 8 350Ω loadcells, support **1mV/V, 2mV/V, 3mV/V** sensitivity
Input sensitivity	**0.1** uV/**d**
Nonlinear	**0.01% F.S**
A/D sampling speed	**50**; **60**; **100**; **120**; **200**; **240**; **400**; **480**; **800**; **960** (**SPS**)
Maximum display accuracy	**1/999999**
Keys	6-key sounding keyboard
Decimal point position	**0, 0.0, 0.00, 0.000, 0.0000; 5 options;**
Overload Display	Weight overload

Chapter 2 Panel and keys

2.1 Front Panel description



Status indication:

- **:** Power supply, when the instrument is powered on, the indicator lights up.
- **ZERO:** Zero Point, when the weight is **0±1/4d,** the indicator lights up.
- **STAB:** stable. When the weight changes within the stable range, the indicator lights up.
- **G/N :** gross/net weight. when the current weight is net, the indicator lights up.
- **COM:** Communication indicator, Communication indicator parameters of system information in system maintenance could define the COM indicator, indicating which communication port status. The range can be defined: serial port 0, serial port 1, network port.

  There are the following cases:

  (1) When the communication indicator define as serial port, the indicator blinks when the serial port is used for data communication.

  (2) When the communication indicator define as network port:

  i. When common network port or EIP is communicating, the indicator blinks.

  ii. When the PN communication connection is established, the communication indicator is steady on, and the communication indicator will blink at a frequency of 1HZ after the LED indicator is flashed.

2.2 Key **Description**

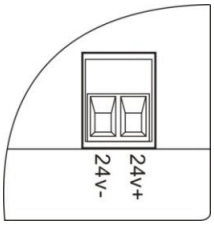
The **GMC-X1LF** has a total of **6** key functions, and the functions of short press and long press are different. The key schematic diagram is shown in the following picture:

Keys	Interface	Short Press	Long Press
▲	Main interfce	/	Switch display: Weight/Loadcell voltage value
	Menu interface	Previous SubParameter	/
	Data input	Data or letter +1	Switch between uppercase and lowercase letters
	Option select page	Previous SubParameter	/
▼	Main interfce	View the cumulative batches	Switch display:

		and weight	Gross/Net weight display
	Menu interface	Previous SubParameter	/
	Data input	Data or letter **-1**	Data Zero when Input pure numbers
	Menu interface	Switch to the next SubParameter	/
	Main interfce	Set the number of batches	View the number of batches remaining
	Menu interface	Switch to the previous SubParameter	/
	Data input	Move the number position to the left	/
	Option select	/	/
	Main interfce	Tare	View the tare weight
	Menu interface	Switch to the next main option	/
	Data input	Move the number position to the right	/
	Option select	/	/
	Main interfce	Go to the menu interface	Quickly view the software version and compile date
	Menu interface	Confirm selection	/
	Data input	Confirm selection	/
	Option select	Confirm selection	/
	Main interfce	Zero (within zero range, gross weight mode is valid)	Zero calibration (valid in gross/net weight mode, net weight mode calibrate zero, auto return to gross weight)
	Menu interface	Return to previous level	/
	Data input	Exit	/
	Option select	Back to the main interfce	/

Chapter 3 Installation and wiring

3.1 Connect power cables to the controller



GMC-X1LF weight transmitter makes **24V** power supply. The wiring of the power terminal is shown below:

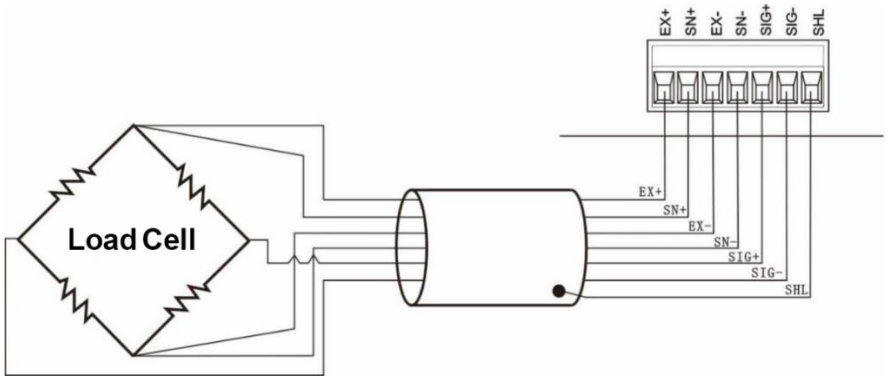
NOTE： The transmitter uses DC24V power supply, use AC220V power will cause permanent damage to the transmitter.

3.2 Loadcell Connection

The GMC-X1LF weight transmitter needs to be connected to an external resistance strain bridge weighing loadcell, and each port of the connection terminal is allocated to:

Ports	**EX+**	**SN+**	**EX-**	**SN-**	**SIG+**	**SIG-**	**SHL**
Six wires	Power positive	Sensitive positive	Power negative	Sensitive negative	Signal positive	Signal negative	Shielded wire
Four wires	Power positive		Power negative		Signal positive	Signal negative	Shielded wire

※ When connecting a four-wire loadcell, the **EX+** and **SN+** ports, **EX-** and **SN-** ports must be shorted. Otherwise, the weight data of the instrument is not read properly.



NOTE：

1.As the output signal of the load cell is an analog signal sensitive to electronic noise, shielded cables should be used for load cell wiring and laid separately from other cables, especially away from ac power supply

2.For the occasions with short transmission distance and little temperature change or low accuracy requirements, four-wire load cell can be selected.However, for applications requiring high transmission distance or accuracy, a six-wire load cell should be selected.

3.For the application of multi-load cell parallel connection, the sensitivity (mV/V) of each load cell should be consistent.

3.3 IO **module interface connection**

GMC-X1LF weight transmitter provides **3** input **5** output, extended **2** input **4** output (**5** in/**9** out)

Standard **IO** adopts transistor output mode, each drive current **200mA**. The factory default low level of input and output interfaces is effective. For details on IO Module, see section 8.2 I/O Port Configuration.

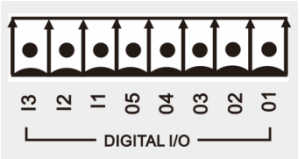


Figure: IO module interface 1

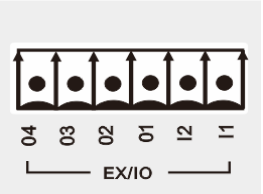


Figure:IO Module expansion interface **2**

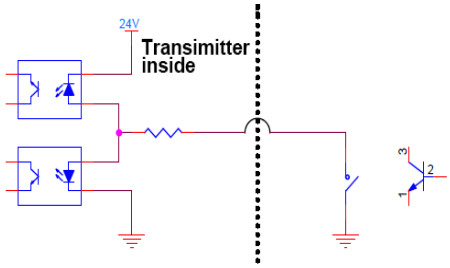
IO Module wiring description:

Connect the instrument with the external device through the wiring, control the instrument through the external input for starting, zeroing, printing and other operations, and display the current state of the instrument through the output, such as the running state, coarse, medium and fine feed signal output.

Input interface connection: Connect the terminal of the external control device to the input terminal of the controller one to one, and test the connection through the input test in the【IO Test】 under the【Maintenance】.Connect successfully, enter the 【Input Cfg】under 【Application】, set the function definition of each input port, for example, input port 1 is set to zero, at this time, press the corresponding external device connection port key, then the instrument will perform the zero operation (within the zero range). The function of other input ports is the same.

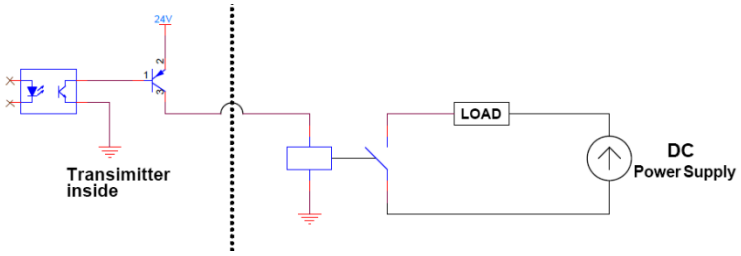
Output interface connection: Connect the external indicating device terminal to the output terminal of the controller one to one, by the IO test, test the connection. The connection is successful, enter the 【Output Cfg】 under 【Application】, set the function definition of each output port, such as output port 1 set to run, at this time the weight of the instrument is in the running state, the corresponding indicator of the external output port is on, at this time the instrument running signal output is effective. The function of other output ports is the same.

Instrument input interface schematic diagram:



Low level mode

Instrument output interface schematic diagram:

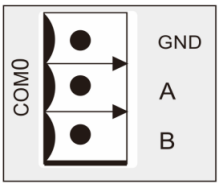


Low level mode

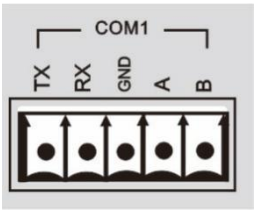
3.4 Serial Port Connection

GMC-X1LF instrument is equipped with **2** serial ports as standard: **1 RS485 port, 1 RS232/485** serial port (software parameter selection).

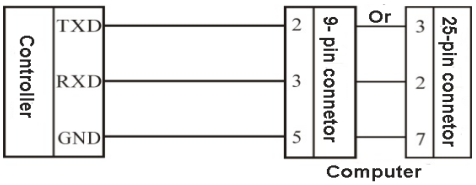
COM0: instrument standard serial port



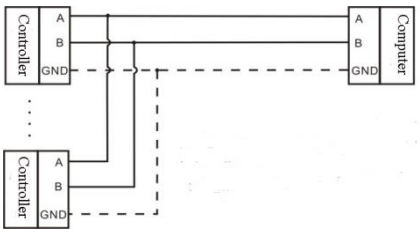
COM1: instrument standard serial port**, RS485**/**RS232** mode is optional (serial port mode is selected in serial port parameters)



RS232 connection mode:



RS485 connection mode:



※ In **RS485** mode, **GND** is the signal ground. In the case of serious interference, low resistance wires should be used to connect the signal ground, so that the ground potential of each node is equal, which can significantly improve the communication quality.

※ The **GND** must be connected in **RS232** mode.

3.4.1 Serial Port Troubleshooting

If the serial port fails to communicate, check:

○ Click the figure above to check the cable connection. Make sure the wiring is correct. The RS232 interface must be connected to all three wires**, Rx, Tx, GND**.

The RS485 interface must be connected to A and B wires.

○ Ensure that the parameters of the connection port are consistent with those of the host.Slave number, baud rate, data format and communication protocol must be consistent with the host computer and **PLC**.

3.5 Network Port Connection

GMC-X1LF products support ordinary network port communication and bus communication (bus communication is optional, order need to declare). Support **TCP** protocol (**Modbus/TCP, Cont-A/TCP, Cont-B/TCP, r-Cont/TCP, rE-Cont/TCP, YH/TCP**)

and **EIP**/**PN**/**EtherCAT** bus protocol

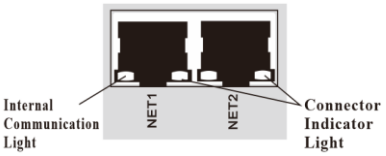
1)When option is Dual network port, network port built-in switch, easy to cascade, support **TCP** protocol.

2)When **PN/EIP** communication, it can connect to any network port of the instrument for communication.

3)When communicating with Ethernet CAT, Net2 serves as the entry point. When connecting to multiple devices, the devices must be connected in series to distinguish the order of entry and exit. For specific parameter settings, please refer to the EtherCAT Communication.

3.5.1 Network port troubleshooting

If the network port is not communicating, check:



○ Check network port indicators.

The hardware connection is normal, and the internal indicator of the instrument is steady on.

The network cable is connected properly, and the connection indicator is blinking.

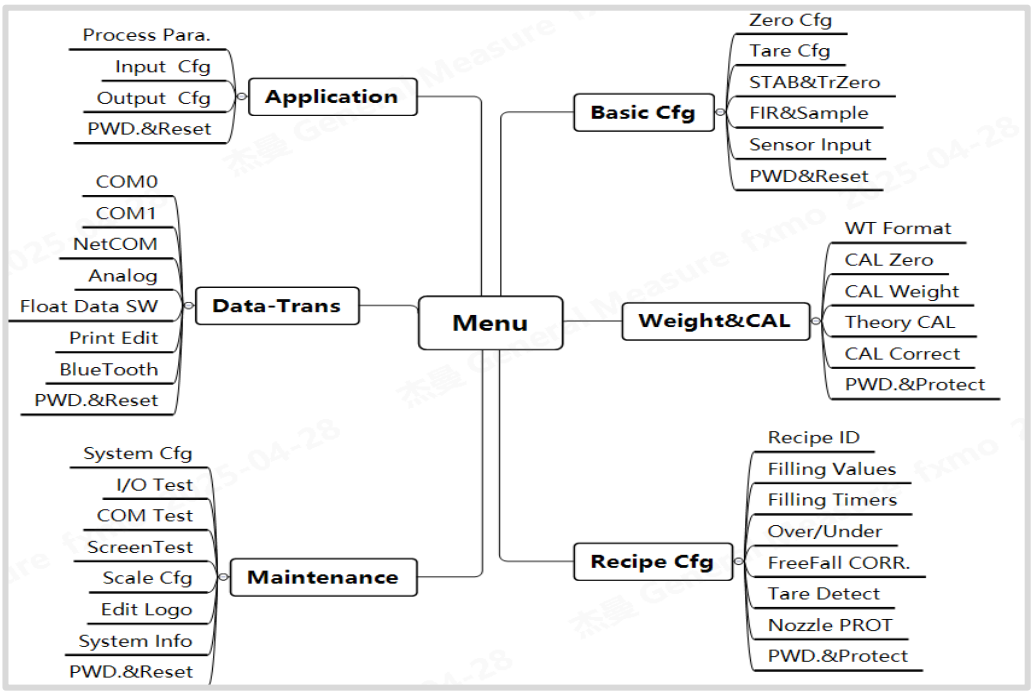
○ Check whether the communication protocol is consistent with the host computer and **PLC**.

○ Confirm that **GMC-X1LF** can be pinged by the network. If not, check the hardware interface section.

○ Check whether **IP** conflicts exist.

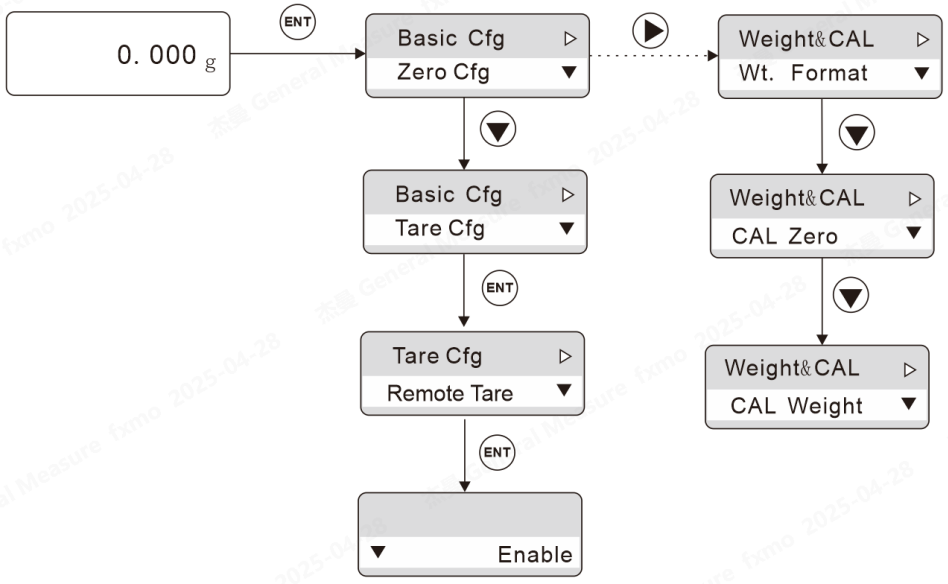
○ Restart the instrument.

Chapter 4 Menu overview

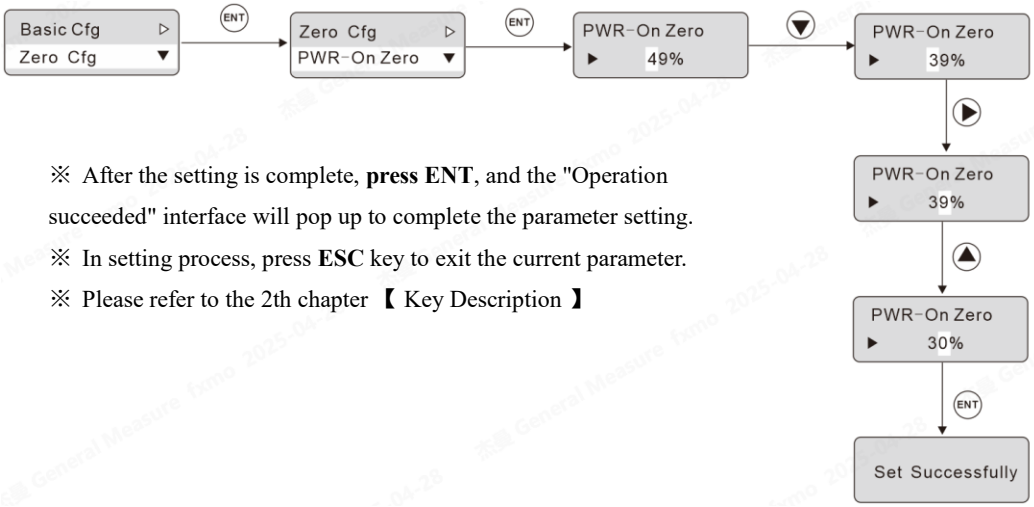


4.1 Parameter selection and setting

Parameter selection: (Select tare operation IO parameter Item)



Parameter value setting: (Set the power-on zero range from **49%** to **30%**)



※ After the setting is complete, **press ENT**, and the "Operation succeeded" interface will pop up to complete the parameter setting.

※ In setting process, press **ESC** key to exit the current parameter.

※ Please refer to the 2th chapter 【 Key Description 】

Chapter 5 Basic parameters

5.1 Basic parameters

Parameter Items	Initial value	Instructions
Zero Cfg		
PWR-On Zero	**0**	Range: **0** to **99(*** full scale %); When this parameter is set to **0**, disable the automatic zero function on power-on. Otherwise, perform zero operation according to the zero range during initial power-on.
Remote Zero	Enable	If this function is enabled, support zero operation through the communication interface. If this parameter is set to disable, Communication port zero cannot be performed.
Zero range	**20**%	Range: **1~99(*** full scale %)
Tare Cfg		
Remote Tare	Enable	Range: Enable,Disable; Set to enable for tare setting operation
Tare Record	Disable	Range: Enable, Disable; Set to enable, after power off and Power-On, the instrument still retains the previous tare weight.
NetSign COR	Disable	Range: Disable, correct tare, BackToGross. Disable: Not process negative net weight. **Correct Tare**: When the instrument is in net weight mode, if the weight is negative and stable, the instrument will treat the current actual gross weight as the new tare, keeping the net weight not negative BackToGross: When the instrument is in net weight mode, if the weight is negative and stable, the instrument automatically returns to gross weight mode.
Basic tare	**0**	Range: **0**~ range; Set the tare, if the value is not **0**, then when taring, using this tare for taring.
STAB&TrZero		
STAB Range	**1d**	Range: **0-99**, turn off the stability function when the parameter is **0**, the weight stability flag bit is always active. When the parameter is not **0**, during the stability judgment time, if the weight change range has not been greater than the set sub-reading, the weight is stable
STAB Timer	**1000ms**	Range: **1-5000** ms. If the weight change range does not exceed the stability range during this time, the weight is stable
TrZero Range	**1d**	Range: **0** to **99d**. Disable zero track function when the parameter is 0. When the parameter is not zero and the weight change is less than the zero range during the zero track time, the system will automatically track the zero point.
TrZero Time	**1000ms**	Range **1-5000ms**, in the zero tracking time, the weight change is less than the zero tracking range, then the system will automatically track the zero point
FIR&Sample		
Digit-Filter	**4**	Range: **0-9**; The larger the number, the higher the filtering intensity, but the instrument response time will be longer.
Adv. Filter	**00**	Range **0-99d**, when **0**, turn off the steady state filter. When the parameter is **non-0**, turn on the steady-state filter if the weight

		changes within the range
AD Sample Rate	**200**	Range: **50**; **60**; **100**; **120**; **200**; **240**; **400**; **480**; **800**; **960 (SPS)**.
Sensor Input		
Input range	**0-10mV**	Range: **0-5mV**; **0-10mV**; **0-15mV** instrument adjusts the signal acquisition range according to the input range to ensure more accurate mesuring.
PWD.&Reset		
Reset Basic	//	Perform factory reset operations on basic parameters
Remote Edit	Enable	After it is enabled, the basic parameters can be set through the communication port. Otherwise, the communication port is read-only to basic parameters.
PWD. Protect	Disable	Range: Enable,Disable; Password is required to enter the Modify parameter setting option after it is on
PWD. Edit	**000000**	Change the password. The password must be 6 characters long.

※ Note: The instrument is in the gross weight state when powered on, and when the tare is cleared, the instrument records the tare and enters the net weight mode.①

②The instrument cannot zero in the mode of net weight display

Chapter 6 Weight&CAL parameters

When the first use of GMC-X1LF weight transmitter or any part of the weighing system has changed and the current device calibration parameters can not meet the user's requirements, the indicator should be calibrated. The calibration can determine the system zero point position, gain and so on of the weighing system.

6.1 Weight&CAL parameters

Parameters	Initial values	Instructions
Wt. Format		
Unit	**kg**	Range: **t**; **kg**; **g**; **lb**
Decimal	**0**	Range: **0**; **0.0**; **0.00**; **0.000; 0.0000**
Division	**d=1**	Instrument indicates the minimum change in value Range: **1,2,5,10,20,50,100,200,500**
Full Scale	**10000**	The maximum indicator value of the instrument, generally take the loadcell range. Range: minimum division *200000 can be set. When out of range (" data out of range ") prompt information, so as not to damage the loadcell by weighing overpressure.
CAL Zero		
Auto Capture	After emptying the scale, press the Enter key to take the current obtained voltage value status as the zero voltage.	
Key In mV	Manually enter the voltage of **4** decimal points manually as the zero point voltage	
CAL Weight		
Weight CP1	Calibration weight point, support **5** point calibration. When the previous point is calibrated, the other weight points will be reset to the uncalibrated state (the default value is **10.0000mV**, **10000kg).** For example, after calibration point **1**, calibration points **2-5** will be reset to **0**	
Weight CP2		
Weight CP3		
Weight CP4		
Weight CP5		
Theory CAL		
LC mV/V	**2.0000**	loadcell true sensitivity, **4** decimal points, if multiple loadcells is the average sensitivity
LC Capacity	**10000**	The true loadcell range, if there are multiple loadcells, is the sum of all loadcell capacitys
Use T-CAL	Disable	Range:enable;disable.Open the theoretical value calibration, so that the theoretical value calibration takes effect
CAL Correct		
CAL Correct	**1.00000**	After calibration, if the zero point is correct, there is a weight deviation, which can be used to correct the weight value. The calculation method of the value: if the instrument shows the weight is **A**, but the weight is **B** after weighing, the calculation method of the correction factor is :(actual weight **B** is the current correction factor)/ the displayed weight **A**
PWD.&Reset		
Cal Reset	//	Restore the calibration parameters to factory Settings (hardware protection switch must be off)

Remote Cal	Disable	Range: Enable;Disable; After enabling, the calibration parameters can be set through the communication port. Otherwise, the communication port is read-only to the basic parameters.
HWD. Protect	Disable	Range: Enable;Disable; When the hardware protection dip switch is in the **ON** position, the calibration is allowed.
PWD. Protect	Enable	Range: Enable;Disable; Password is required to input the modify parameter setting option after it is turned on, and password is required when switching.
PWD. Edit	**000000**	Users can change the calibration password

6.2 CAL Zero

CAL Zero means zero calibration of the scale.

There are two ways to calibrate zero: Automatic Obtain and manual input. When the new equipment or weighing structure is adjusted, the "auto capture" method must be used for zero calibration.

Auto Capture:

Calibration success condition: the scale is stable.

The Instrument interface displays the current millivolts. After emptying the scale, press the **ENT** key to mark the current state to zero.

Loadcell value
0.6688 mV

Key In mV:

Manually input the zero corresponding to the millivolt value, that is, the input value status is calibrated to zero.

Key In mV
00.0000 mV

※ Generally used for without weight calibration, the value recorded by the data recorded when the weight calibration is used for manual input.

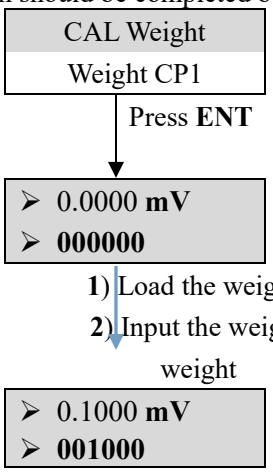
6.3 CAL Weight

CAL Weight means weight calibration with standard weights.

The instrument supports **5-point** calibration, which provides users with the maximum number of calibration points according to their needs.

Calibration method:

※ The zero point calibration should be completed before the weight calibration.



Multi-point calibration should be noted:

1） The user can choose the number of calibration points, such as single point calibration, after the calibration complete, the first weight point can exit.

2） Can not be calibrated across the point, otherwise appear "uncalibrated the previous gain point" alarm prompt. If the **3-point** calibration is used, it is necessary to calibrate the Weight CP**1**, the CP**2** and the CP**3**, but it is not possible to calibrate the calibration point **3** and the calibration point **4** after completing the calibration point **1**.

3） When the multi-point calibration, the weight weight needs to increase, such as the weight of the weight CP**2** must be greater than the weight CP**1**, otherwise the alarm of "the weight calibration is less than the previous point" will appear.

6.4 Theory CAL

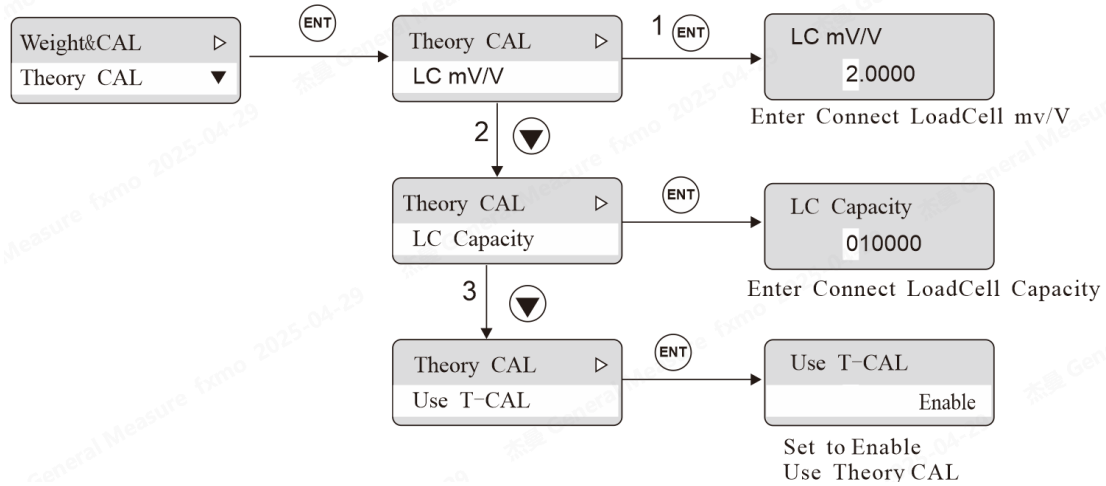
Theoretical value calibration refers to the weight calibration operation by connecting the loadcell sensitivity and loadcell range value through input.

Theoretical value calibration requires **3** steps:

1） Set the loadcell sensitivity (such as connecting multiple loadcells, input the average sensitivity)

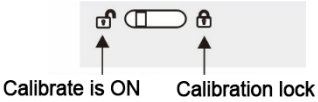
2） Set the total loadcell capacity (if connecting multiple loadcells, enter the total loadcell range)

3） Turn on the ""Use T-CAL " switch.



6.5 Calibration lock application

GMC-X1LF calibration has dual switch protection:



1） Remote calibration

The remote calibration switch is the communication port calibration parameter protection switch, which is limited by the hardware protection state.

When the hardware protection switch is on and the remote calibration switch is also set to on, the instrument calibration can be performed through the communication

port. When the hardware protection switch is off, no matter the remote calibration is set to on or off, it is not allowed to be calibrated through the communication port.

2） Hardware protection

If this parameter is set to on, the status of the external hardware toggle switch is judged. If the external switch is turned on, the calibration is allowed. If the toggle lock is turned on, calibration is not allowed. If it is set to off, the hardware switch status is not judged.

Chapter 7 Recipe Configure

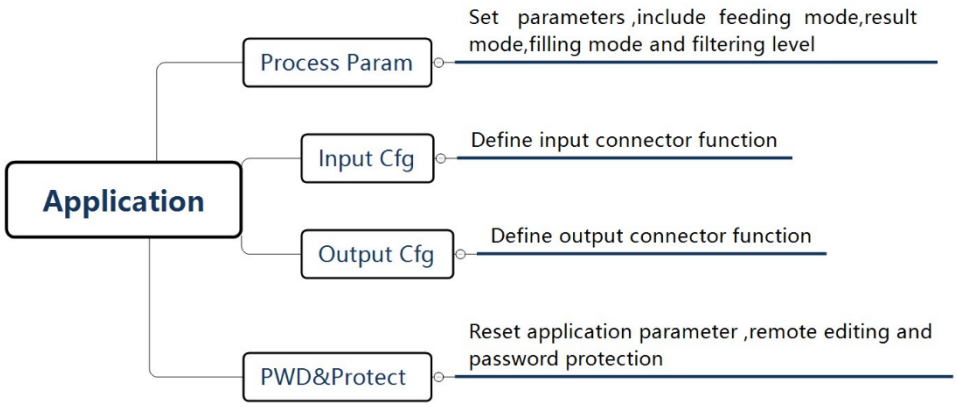
7.1 Recipe setting parameter content

Parameter	Initial value	Instructions
Recipe ID		
Recipe ID	01	Range: 1-20; The recipe ID currently in use.
Filling values (Note: system maintenance of the scale body parameters of the scale structure of the display of target parameters are not the same, see the parameter description)		
Target	0	Range: 0~maximum range; The measured value per irrigation during the cumulative process.
Co-F Remain	0	Range: 0~ Max range; In the process of measurement, if the weighing value is ≥Target value – Coarse Remain, then close the Coarse Feed.
Me-F Remain	0	Range: 0~ Max range; If the output is defined, in the measurement process, if the weighing value is ≥Target value – Medium Remain, then close Medium Feed.
Free Fall	0	Range: 0~ maximum range; In the weighing process, if the weighing value is ≥ Target value – Free Fall, then close Fine Feed.
NearZero Band	0	Range: 0~ maximum range; In the feeding process, if the weighing value is less than or equal to the zero zone value, then the delay time of pushing the bucket is started (Note: when the scale structure is single increment and multi- increment, the parameter can be set)
Bucket Leak	0	Range: 0~ Max range; In the filling process, record the maximum weight, if the current gross weight is less than the difference between the maximum weight and the reduction protection threshold, then alarm. (Note: When the scale body structure is single increment or multi increment, the parameter can be set)
Co-Fi Mini-Flow	0	The value of the weight per second increased during coarse feed work. When the coarse feed flow rate is lower than this value, the instrument detects a Bucket leak by default, and the instrument output alarms and returns to the stop state. (Set to 0, turn off the function) (Note: When the scale structure is single-head increment and multi-head increment, the parameter can be set)
Nozzle Up SP1	0	When the filling weight reaches this preset weight and the step raise nozzle/raise nozzle has an output, its output invalid. (Note: When the scale body structure is single-head increment and multi-head increment, the parameter can be set)
Nozzle Up SP2	0	When the filling weight reaches this preset weight and the step lower nozzle /raise nozzle 2 has an output, invalidate its output. (Note: When the scale body structure is single increment and multi increment, the parameter can be set)
Supply Empty	0	When the instrument stops filling, if the material weight in the storage hopper is less than this lower limit value, the feed output is effective (this lower limit value must be greater than the filling target value, that is, it must be supplyed when it is insufficient to fill the next Bucket). (Note: when the scale body structure is multi reduction, the parameter can be set)

Supply Full	0	When the instrument stops filling, if the feed is performed, the feed stops when the level is reached. (Note: when the scale body structure is multi reduction, the parameter can be set)
Fast Wt Refresh	0	Range: 0~ Max range; Run turn to stop state, discharge to zero zone, displayed weight jump to the current weight value. (Note: When the scale body structure is single increment or multi increment, the parameter can be set)
Filling Timer		
Tare PDLY	0.5 s	Range: 0~99.9s; In the running state, at the beginning of each filling process, if the weight of the scale is greater than the near-zero zone value, the instrument will start delay before taring. After this time delay, if the tare detection switch is **ON**, the instrument will carry out tare detection. If the tare is in the tare detection range, will wait stable to tare.
Co-F Inhibit T	0.5 s	Range: 0~99.9s; During this time, the actual weight of the instrument is not compared with the target value - coarse feed reserve, and the weight judgment is made after the end of the forbid judge time.
Me-F Inhibit T	0.5 s	Range: 0~99.9s; During this time, the instrument does not compare the actual weight with the target value – medium feed reserve, and the weight judgment is made after the end of the forbid judge time.
Fi-F Inhibit T	0.5 s	Range: 0~99.9s; During this time, the instrument does not compare the actual weight with the target value - the free fall value, and the weight judgment is made after the end of the forbid judge time.
FreeFall DLY	0.5 s	Range: 0~99.9s; the delay time of stop fine feed to the weighing platform be stable, after this delay, the instrument perform the over/under judgment or directly output waiting signal. (Note: When the scale body structure is multi-head decrement, the parameter can be set)
Result Wait T	0.5 s	Range: 0~99.9s; When the waiting mode is waiting by time, the waiting hold time is started. When the time is reached, the waiting process is considered completed. The waiting weight at this time will add in the accumulation.
Nozzle Up PDLY	0.5 s	Range: 0~99.9s; In Nozzle raising stage, after this time, the output of the nozzle/nozzle raising signal is invalid. (Note: When the scale body structure is single increment or multi increment, the parameter can be set)
Nozzle Up DLY	0.5 s	Range: 0~99.9s; After the output of the nozzle/nozzle raising signal is invalid, it will enter the next stage after this delay time. (Note: When the scale body structure is single increment or multi increment, the parameter can be set)
Move Bucket DLY	0.5 s	Range: 0~99.9s; When the weight (gross weight) of the platform is less than the value of the zero zone, the delay time of pushing the bucket is started. When the time is reached, the instrument will turn off the signal of pushing the bucket. (Note: When the scale body structure is single increment, the parameter can be set)
OVER/UNDER		
Result Detect	Disable	Range: Disable, ON Not Pause, ON And Pause. For detection and suspension, when the feeding process appears over or under, the instrument suspend and waiting for user processing.
O/U Alarm T	2s	Range: 0~99.9s; When there is no manual clearing alarm, after this

		time, the over/under alarm will turn off by itself.
Over Limit	0	Range: 0~ maximum range; In the feeding process, if the weighing value ≥ the target value + the over value, it is judged as over.
Under Limit	0	Range: 0~ maximum range; In the feeding process, if the weight ≤ the target value - the under value, it is judged as under.
Max. Counts	0	Range: 0~99; When under replenish status, feeding one cycle (valid time + invalid time) is replenish once. After the replenish times exceed the set value, stop feeding, and output the waiting signal after re-judging the over/under.
Fill-ON T	0.5 s	Range: 0~99.9s; When replenish output, in an on-off cycle, the fine feed valid time
Fill-OFF T	0.5 s	Range: 0~99.9s; When feeding output, in a on-off cycle, the fine feed invalid time.
Free Fall CORR.		
Ref. Counts	0	Range: 0 to 99; The instrument takes the average of the set number of free fall as the basis for free fall correction..
CORR. Range	2.0%	Range: 0~9.9%; Percentage of the target value, when this free fall exceeds the set range, this free fall will not be add in the arithmetic average range
CORR. Degree	50%	The amplitude of each free fall correction. Range: 0:100% correction; 1:50% correction; 2:25% correction
Tare Detect (Note: when the scale structure is single increment or multi increment, the parameter can be set)		
Tare Detection	Disable	Set to "Enable"; Tare detection will be performed on startup.
Tare Up Limit	0	Range: 0~ Max range; The upper limit of the tare detection range.
Tare Low Limit	0	Range: 0~ Max range; Lower limit of tare detection range.
Use Preset Tare	Disable	Set to " Enable "; Tare detection stage If the tare is out of range (greater than the tare lower limit), use the formula tare as the fixed tare
Bucket Tare	0	Range: 0~Max range; Set the value of the taring parameter
Nozzle PROT (Note: when the scale structure is single increment or multi increment, the parameter can be set)		
Nozzle PROT	Disable	Set this parameter to Enable. Prompt warning if the weight > the bump drum protection weight during the lower nozzle process before the filling start.
Bump Weight	0	Range: 0~ Max range; During the detection of bump Bucket protection, if the current gross weight - the initial gross weight before lower nozzle > bump Bucket protection weight, it is considered that the nozzle hit the Bucket
Bump Alarm T	2.0 s	Range: 0~99.9s; Bump Bucket alarm **IO** output duration time.
PWD.&Reset		
Recipe Reset	//	Perform factory reset operation for basic parameters
Remote Edit	Enable	After opening, the formula parameters can be set through the communication port. Otherwise, the communication port is read-only to the basic parameters.
PWD. Protect	Disable	Range: Enable, Disable; Password is required to enter the modify parameter setting option after it is on
PWD. Edit	**000000**	Modify the password. The password contains six characters.

Chapter 8 Apply Settings



8.1 Process **Parameters**

Parameter Items		Initial value	Instructions
Fill Speed CTR.		Single Ctrl	Coarse, medium and fine slow feed control mode selection: Single Ctrl, Single Ctrl Combo Ctrl: Coarse feed, medium and fine feed all work at the same time at first; then medium and fine feed work at the same time;then fine feed work. Single Ctrl: Coarse feed at first; then medium feed; finally fine feed.
Result Check		Stable Mode	Stable Mode: After completed the fine feed, the weight is stable means complete the waiting process. Delay Mode: After completed fine feed, the setting process is completed after the Waiting holding time. Stable&Delay: After completed fine feed, The weight is stable and the waiting holding time has passed, then the waiting process is completed.
Filling mode (Note: When the scale body structure is single increment and multi increment, the parameter can be set)		Net Filling	Gross Filling, Net Filling mode selection switch.
APP Parameters (Note: When the scale structure is single increment and multi increment, the parameter can	Fill Permit REQ	Disable	Range: Disable, Enable; If the input defines the "taring/liquid filling start signal, Enable: When running, it is not necessary to wait for the external "tare/start filling" input signal to be valid, and directly judge table then taring (net weight filling) or start filling liquid (gross weight filling); Disable: When running, the external "tare/start filling liquid" input signal is valid before taring (net weight filling) or starting filling (gross weight filling).
	Fill 1st Action	Tare	Range: Tare,Nozzle Down

be set)			Tare: during the operation of the instrument, when the delay before taring ends, the output signal of the lower nozzle is valid. Off Nozzle Down: During the operation of the instrument, when there is a delay before starting taring, the output signal of the lower nozzle is valid. On
	M-Fill To ACUM	Disable	Range: Disable, Enable; Set to " Enable ", when the "manual run once", the weight value is allowed to be add in the ACUM.
Proess FIRs	Proess FIRs CFG	Disable	Range: Disable, Enable; When the switch is on, feed filter level, waiting filter level and push bucket filter level takes effect
	Filling FIR	5	Range: 0~9; The filtering parameter in the feeding process, 9 has the strongest filtering effect.
	Wait Result FIR	7	Range: 0 ~ 9; Filtering parameters in the waiting process, 9 has the strongest filtering effect.
	Bucket Move FIR	3	Range: 0~9; Filtering parameters in the process of pushing the bucket, 9 has the strongest filtering effect.
Feeding Switch		Enable	Range: Disable, Enable; In reduction mode, start the replenish function judgment. Enable: Turn on the up/low level replenish function. Disable: Turn off the up/low level replenish function.

8.2 I/O port configuration

Instrument standard for **3** input interface and **5** output interface, extensible optional **2** input 4 output, can meet **5** in and **9** out of I/O functions. Realize the connection between the instrument and external devices.

Each input and output can be set by itself, different scale body structure, the definition of IO is different. The factory definition of input and output is as follows:

Single increment default definition:

Input		**Output**	
Input 1	I1 Start	Output **1**	O1 Running
Input 2	I2 E-stop	Output **2**	O3 Co-Fill
Input 3	I3 Stop	Output **3**	O4 Me-Fill
Ext. IN1	I5 ZERO	Output **4**	O5 Fi-Fill
Ext. IN2	I6 Clear Alarm	Output **5**	O6 Wait Result
		Ext. Out**1**	O7 DONE
		Ext. Out**2**	O10 Over/Under
		Ext. Out**3**	O14 Bucket Push
		Ext. Out**4**	O19 COM HeartBeat

Multiple increment default definition:

Input		**Output**	
Input 1	I1 Start	Output **1**	O1 Running
Input 2	I2 E-Stop	Output **2**	O3 Co-Fill
Input 3	I3 Stop	Output **3**	O4 Me-Fill
Ext. IN1	I5 ZERO	Output **4**	O5 Fi-Fill
Ext. IN2	I6 Clear Alarm	Output **5**	O6 Wait Result
		Ext. Out**1**	O7 DONE

	Ext. Out**2**	O10 Over/Under
	Ext. Out**3**	O11 Alarm
	Ext. Out**4**	O19 COM HeartBeat

Multiple decrement default definition:

Input		**Output**	
Input 1	I1 Start	Output **1**	O1 Running
Input 2	I2 E-Stop	Output **2**	O3 Co-Fill
Input 3	I3 Stop	Output **3**	O4 Me-Fill
Ext. IN1	I5 ZERO	Output **4**	O5 Fi-Fill
Ext. IN2	I6 Clear Alarm	Output **5**	O6 Wait Result
		Ext. Out**1**	O7 DONE
		Ext. Out**2**	O10 Over/Under
		Ext. Out**3**	O11 Alarm
		Ext. Out**4**	O19 COM HeartBeat

8.2.1 Definition of Input and output

The output and input ports can be defined according to the actual application, and the input and output switch values can be modified through Application —Input Cfg and Output Cfg. Each IO corresponding a code. The details are as follows:

Input port function description:

Code	Content	Meaning
I0	None	If the port number is defined as 0, the input port is undefined.
I1	Start	The effective instrument signal will enter the running state. This input is a pulse input signal.
I2	E-Stop	The signal input is valid, and the instrument will stop the feeding process. This input is a pulse input signal.
I3	Stop	When the signal input is valid, instrument will return to the stopped state after completing the current packaging process. This input is a pulse input signal.
I4	Pause	When the input is valid, the input will suspend the feeding process. When the instrument is in the suspended state, the running output signal will alternately flash, input start signal will continue the feeding process, input emergency stop, the instrument will return to the stopped state. This input is the pulse input signal.
I5	ZERO	In the stopped state, when the signal is valid, the instrument perform the zero operation. The condition is stable and within the zero range.
I6	Clear Alarm	Use to clear the alarm output of the instrument. This input is the pulse input signal.
I7	Change Recipe	This input is valid once, the recipe number increases by 1, and returns 1 when the recipe number is greater than 20. If the recipe target value is 0, that recipe will be skipped. This input is a pulse input signal.
I8	Print	When this signal input is valid, perform the print function.
I9	P_EMPTY_LINE	In the non-print state, when the signal input is valid, perform the feed paper function.
I10	Bucket ->Permit	If the allowable input of pushing bucket is defined in the IO

		module, it is necessary to judge whether the allowable input of pushing bucket is valid after weighing. If it is valid, the process of pushing bucket starts, and if it is invalid, wait.
I11	Tare/Fill Start	In the running state, after the empty bucket is weighed, the instrument will detect the signal, and if the signal is valid, the instrument will automatically tare (if the gross filling mode:does not tare), the filling process will be performed. This is the pulse input signal.
I12	Nozzle Down OK	Before taring delay end and wait this signal be valid to start filling. This input is a pulse input signal.
I13	Supply Full	A up level device for connecting to the storage silo at the front end of the filling scale. The input should be a level input
I14	Supply NotEmpty	A low level device for connecting the storage tank at the front end of the filling scale. The input should be a level input
I15	M Co-Fill (LS)	When the signal is valid，coarse feed signal output is valid, and when the signal is invalid，coarse feed signal output is invalid.
I16	M Fi-Fill (LS)	When this signal is valid, fine feed signal output is valid, and when this signal is invalid, fine feed signal output is invalid
I17	Start/EStop (LS)	If the signal is valid, the instrument will enter the running state, and if it is invalid, it will return to the stop state. This input is a level signal.
I18	Start/Stop (LS)	If the signal is valid, the instrument will enter the running state, and if it is invalid, it will return to the stopped state after completing the current packaging process. This input is a level signal.
I19	Run Once	In the stop state, when the input is valid, start feeding, the control process is consistent with the feeding process in the running state, and return to the stop state after the end of the waiting holding time t7. This input is the pulse input signal.
I20	Simulation Run	When the input is valid, simulate the feed control process according to different scale structure. (Note: See Section 10.3 Simulation Operation for details about the specific operation process)

Output Port function description

CODE	Content	Meaning
O0	None	If the port number is defined as no output, it means that the output port is undefined.
O1	Running	This signal is valid when the instrument is in run status.
O2	Stopped	This signal is valid when the instrument is in the stopped state.
O3	Co-Fill	Control large discharge port of the feeding mechanism. In the feeding process, the current weight < the target value – coarse reserve, this signal is valid.
O4	Me-Fill	Control medium discharge port of the feeding mechanism. In the feeding process, the current weight < target value – medium reserve, this signal is valid.
O5	Fi-Fill	Control fine discharge port of the feeding mechanism. In the feeding process, the current weight < target value – free fall, this

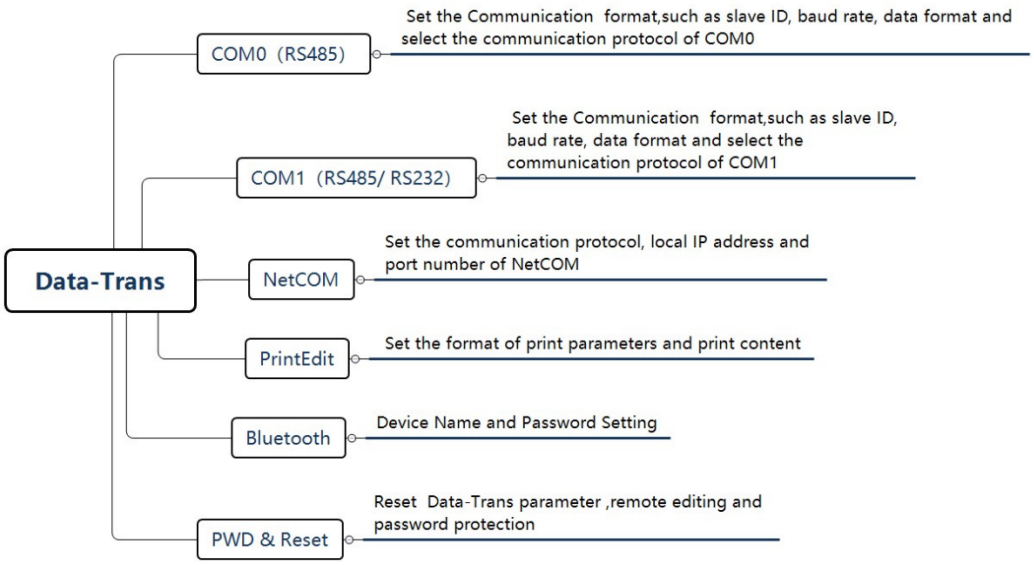
		signal is valid.
O6	Wait Result	When the instrument is finished feeding and be in waiting status, this signal is effective.
O7	DONE	After the setting is complete, the define output signal is valid.
O8	Supply Empty	This signal is valid when the liquid in the storage tank is below the low level.
O9	FILL Supplement	The feed used to control the front end of the filling scale for storage filling. The signal is valid when the liquid in the storage irrigation is lower than the lower level/lower limit; Liquid is higher than the upper level/upper limit, the signal is invalid
O10	Over/Under	Open the over/under detection switch, if over or under situation occurs, the signal is valid, valid time to maintain the over/under alarm time.
O11	Alarm	This output is valid when there is an error in the instrument.
O12	NearZero	This signal is valid if the current net weight is less than the set zero zone value
O13	Nozzle Bumped	This signal is effective when a Bucket bump is generated during the next lower nozzle
O14	Bucket Push	Used to push a bucket that has been filled. The signal is effective when the waiting time is over or when the output valid time reached.
O15	Batch Complete	This output is valid when the instrument has completed the set number of batches.
O16	Nozzle Down/Up	The signal is valid when the lower the nozzle. When lifting the nozzle, the signal is not valid. When using the lower nozzle function, an unused output port must be defined as O16
O17	Nozzle Up Step1	This signal is valid when lower the nozzle. Wait for the filling weight reached then step raise nozzle value 1 preset weight, then the output is invalid.
O18	Nozzle Up Step2	This signal is valid when lower the nozzle. Wait for the filling weight reached, then step raise nozzle value 2 preset weight, then the output is invalid.
O19	COM Heartbeat	The serial port transmits **1HZ** square waves.

8.3 Application password setting and reset

PWD.&Reset		
IO Reset	//	Restore the factory Settings of the input and output parameters
Except IO Reset	//	Restore other application Settings except IO parameters.
Reset All	//	Perform a factory reset operation on the application Settings parameters
Remote Edit	Enable	After enabling, the formula parameters can be set through the communication port. Otherwise, the communication port is read-only to the basic parameters.
PWD. Protect	Disable	Range: Enable, Disable; Password is required after enter the modify parameter setting option when it is on
PWD. Edit	**000000**	Change the password. The password contains six characters.

Chapter 9 Data-Trans

GMC-X1LF has rich communication function interface: **1 RS485** (serial port **0**), **1** RS232/485 (serial port **1**), **1** network port communication interface (support **TCP, PN/EIP EtherCAT** bus function).



9.1 Data-Trans parameter

GMC-X1LF instrument provides standard configuration **of 1 RS485** (serial port **0**), **1** RS232/485 (serial port **1**), two serial port parameters as follows:

Parameters	Initial value	Instructions
COM0/COM1 ID	**01**	Range: **01-99**
Baudrate	**38400**	Range: **1200,2400,4800,9600,19200,38400,57600,115200**
Protocol	**Modbus RTU**	Range: **Modbus RTU**, **Modbus ASCII**, **Cont-A (continuous transmit-CB920)**, **Cont-B (continuous transmit-TT)**, **r-Cont**, **rE-Cont**, **YH(protocol)**, Print**(print)**
Data Format	**8-E-1**	Range: **8-N-1**, **8-e-1**, **8-o-1**, **7-e-1**, **7-o-1** (Note: Only 8-bit data bits are supported when modbus protocol)
DwordFormat	**AB-CD**	Range: **AB-CD** (high word in front), **CD-AB** (low word in front)
Send Gap	**20ms**	The time interval between frames under the continuous send protocol. The value ranges from **0** to **1000ms**. Default: **20ms**
RS485/RS232	**485** mode	Range: **485** mode, **232** mode optional. ※ This parameter is available only under COM**1**

9.2 Network Port Communication Parameters

9.2.1 Parameter Description

Parameters	Initial value	Instructions
Protocol	**Modbus/TCP**	When selecting a common network port, the protocols are: **Modbus/TCP**,**Cont-A/TCP**,**Cont-B/TCP**, **r-Cont/TCP**, **rE-Cont/TCP**, **YH/TCP**, Default:**Modbus/TCP**
DwordFormat	**AB-CD**	Range: **AB-CD** (high byte in front), **CD-AB** (low byte in front); This parameter is visible when Modbus/TCP PN/EIP/EtherCat is selected to send.
Send interval	**20ms**	Range: 0-1000ms**;** When the communication mode is Cont-A/**TCP**, Parameters are visible when **Cont-B/TCP,r-Cont/TCP, rE-Cont/TCP, YH/TCP,** and are used to control the time interval between frames.
IP Config	**192.168.000.100**	Range of each IP segment: **0 to 255**; This parameter is available for network port communication and PN/EIP communication.
Socket	**502**	Range: **1-65535;** This parameter is available for network port communication and PN/EIP communication.
Write Enable	Disable	Range: Disable, Enable; (This parameter is visible when selecting PN/EIP attachment board) Enable: When PN/EIP communication, the instrument parameters are controlled by the "module parameters" in the master station configuration, and the parameters set in the "module parameters" are automatically written to the instrument when the instrument is powered on. Disable : When PN/EIP communication, instrument parameters are not controlled by "module parameters" of the master station.
GSD Type	Standard	If the option is PN bus, this parameter can be seen. Standard /Simple/Simple2 is optional

9.3 Communicate the floating-point switch

Parameters	Initial value	Instructions
Float Data SW	Disable	When turned on, the corresponding parameter will become a floating point number read and write type (serial and network port communication)

9.4 Print Edit

When the serial port parameter is selected as **"Print"**, when input print signal, the instrument data can be printed.

Parameter	Initial value	Instructions
HeaderLines	**1**	Choose how many header lines to use, Range：**0** to **4**
EndLines	**1**	Choose how many tailer lines to use, Range：**0** to **4**

Ticket Gap		**2**	The number of lines between each print, Range：**0** to **99**
Content		Display weight	Optional: DisplayWt, Gross Wt, Net Wt,, Net+Tare (two lines), All Info. (Gross weight + Net weight + Tare) (print includes units)
Print Lang		English	Chinese/English
Header Edit	HeaderLines**1**	----------	Header information line, **16** English characters can be edited
	HeaderLines**2**	----------	
	HeaderLines**3**	----------	
	HeaderLines4	----------	
Ender Edit	EnderLines**1**	---------	Tailer Information line, **16** English characters can be edited
	EnderLines**2**	----------	
	EnderLines**3**	----------	
	EnderLines**4**	----------	

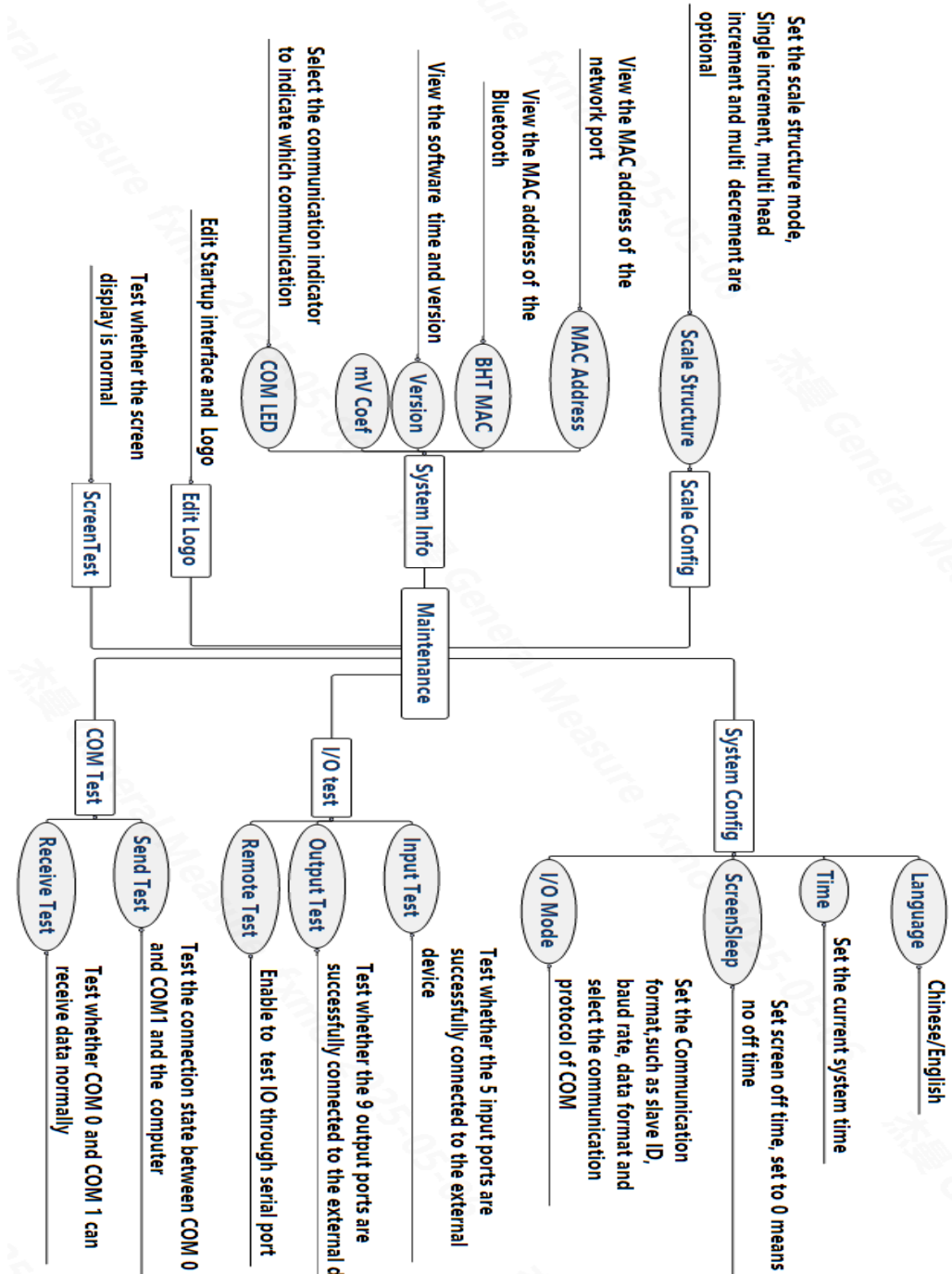
Example of print format applications:

Parameter setting		Print Content（English）
Header Lines	**2**	----------
EnderLines	**1**	------**TEST**------
Ticket Gap	**3**	No. **Xxxxxxx1**
Content	Display weight	Display weight
Print Lang	Chinese	NT **-X.XXXX kg**
HeaderLine1	----------	------**END1**------
HeaderLine 2	------**TEST**-----	
EnderLine 1	------**END1**-----	
		---------- (Print 2rd)

9.5 Communication **Set** Password and reset

PWD.&Reset		
COM Reset	//	Restore communication parameters to factory Settings.
Remote Edit	Enable	After turn on, the formula parameters can be set through the communication port. Otherwise, the communication port is read-only to the basic parameters.
PWD. Protect	Disable	Range: Enable, Disable; Password is required to enter the Modify parameter setting option after it is on.
PWD. Edit	**000000**	modify the password. The password must be 6 characters.

Chapter 10 System Maintenance



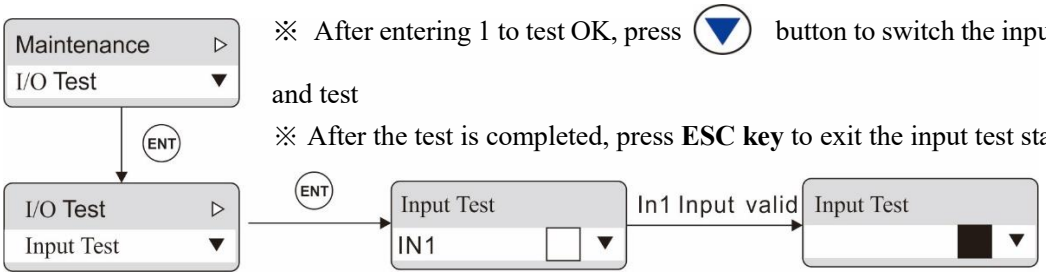
10.1 Maintenance

Parameter Items		Initial value	Instructions
System Config			
Language		Chinese	Chinese, English optional; Cannot be edited remotely.
Time		Current time	Display the current time.
ScreenSleep		600s	Range: **0~3600s**; can set the time when the screen is off.
I/O Mode	Norm IO	Low level	Currently only low level mode is available.
	Extra IO	Low Level	
I/O Test			
Input Test		Refer to Section 10.2 for details.	
Output Test			
Remote Test		Enable	Set to " Enable " to enter IO test mode via serial port.
COM Test			
Send Test		Refer to Section 10.3 for details.	
Receive Test			
Screen Test If the screen is white and the indicator light is all on, the screen is normal.			
Scale Config			
Scale Structure		Single Inc.	Single Inc.; Multi Inc.; Multi Dec.are optional.
Edit Logo Modify the startup Logo. Only support numbers, English letters, Spaces, and hyphens are supported. Long press the Up button to switch case. 8 characters are supported			
System Info.			
MAC Address		**BC-66-41-9x-xx-xx**	View the MAC address of the instrument, it can only be queried but not modified
BHT **MAC**		**D6-19-F9-54-4C-57**	View Bluetooth **MAC** address, can only be queried not modified
Version		**2021/07/09 18:10** **01.00.00**	Contains the software version and compile date, can only be queried but not modified
Serial No.		//	Contains the serial number and 138 number, can only be queried and cannot be modified
MV Coef		**1.0000**	Used to calibrate the input voltage of the instrument loadcell, which can only be queried but not modified.
COM LED		COM**1**	Range: COM0, COM**1**, NetCOM; The COM indicator on the front panel blinks during communication
Password and Reset			
Partly RST.		//	Restore all parameters except calibration to factory Settings
Full Reset		//	Perform factory reset operation on all parameters
Remote Edit		Enable	When enabled, parameters can be modified by communication
PWD. Protect		Disable	Range: On, off; Password is required to enter the modify parameter setting option after it is on
PWD. Edit		**000000**	Modify the password. The password must be 6 characters.

10.2 I/O Test

The I/O test is used to test whether the I/O connection is normal.

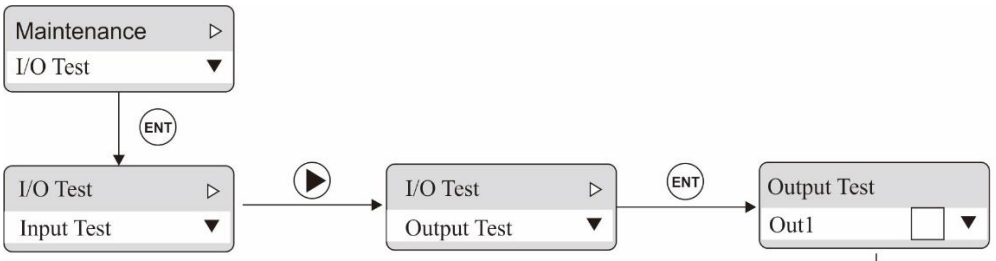
Input test:



※ After entering 1 to test OK, press button to switch the input port and test

※ After the test is completed, press **ESC key** to exit the input test state

Output test:



※ In the output test state, press **ENT key to switch** the external output state.

※ The external state can be changed with the **ENT key switch**, indicating that the output port is connected normally.

※ After the test is completed, press **ESC** to exit the output test state.

Output1 Valid means Output connector state is ok

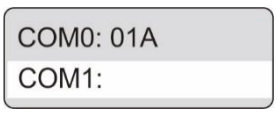
10.3 Serial **Port Test**

The function of serial port test is to send and receive data at a fixed baud rate **(9600)** and data format **(8-N-1)** to test the connection status of the serial port.

Send Test: Send data "**COMx Test nnn**". **X=1** if it is serial port **1**.

Receive Test: The external sends test data (only ASCii code) to the instrument and displays the data on the display, each frame data length cannot exceed 10 bytes.

If the external sends **30 31 41** to the instrument, and the instrument displays the following figure, it means that the **COM0** connection is normal.



Chapter 11 Communication Protocol and Address

11.1 Modbus Protocol

11.1.1 Function code and Exception code Description

The function code supported by the instrument

Function code	Name	Instructions
03	Read register	Read up to **125** registers at a time
06	Write single register	
16	Write multiple registers	This instrument command only supports writing double registers, the address must be aligned when writing, only a part of the double register is not allowed to be written, and read part is allowed when reading.
01	Read Coil	Note that this length is in bits.
05	Write Coil	

Note: This instrument only supports the above **MODBUS** function codes, the instrument will not respond when sending other function codes to the instrument.

Exception Code response

Code	Name	Meaning
02	Illegal data address	For this instrument, this error code indicates that the received data address is an disallowed address.
03	Illegal data value	The data written is not within the allowed range.
04	Slave machine failure	An unrecoverable error occurs when the instrument is attempting to perform the requested operation.
07	Unsuccessful programming request	For the instrument, the command received cannot be executed under the current conditions.

11.1.2 Transmission mode

RTU mode

(**1**) When communicating in **RTU** mode, every **8** bits (**1** byte) in the message is divided into two **4-bit hexadecimal** characters.

(**2**) The end of a frame must be more than 3.5 characters apart**. For a more reliable end, it is recommended to use an interval of more than 4.0 characters.**

The specific protocol is as follows:

Supported data formats: 8-bit data bit**,** 1-bit stop bit, parity check (**8-E-1**)

8-bit data bit**,** 1-Stop Bit, Odd check (**8-O-1**)

8-bit Data bits**,** 1-Stop Bit, no check (**8-N-1**)

Code: Binary

11.1.3 Modbus Communication Address Table

PLC address	Display address	Meaning	Instructions
Weight status information parameters			
40001-40002	**0000-0001**	Current weight value (**4** bytes signed integer) (when communication floating-point switch is turned on, displayed floating-point number)	
40003-40004	**0002-0003**	Decrement mode: The weight of using the decrement method	

<table>
<tr><td></td><td></td><td colspan="4">Other modes |: reserved</td></tr>
<tr><td rowspan="14">40005</td><td rowspan="14">0004</td><td rowspan="14">Weight status flag bit</td><td>Bit</td><td colspan="2">Instructions</td></tr>
<tr><td>D13-15</td><td>reserve</td><td rowspan="14">※ Indicates the weight status of the instrument, when it is the current state, the status bit shows "1".
If the current weight is zero and stable, the address D0D1 status bit is "1"</td></tr>
<tr><td>D12</td><td>Bipolar</td></tr>
<tr><td>D11</td><td>Calculate weight by using theoretical value</td></tr>
<tr><td>D10</td><td>ADC Failure</td></tr>
<tr><td>D9</td><td>Current display net weight</td></tr>
<tr><td>D8</td><td>Millivolt stable</td></tr>
<tr><td>D7</td><td>Loadcell negative overflow</td></tr>
<tr><td>D6</td><td>Loadcell positive overflow</td></tr>
<tr><td>D5</td><td>Weight negative overflow</td></tr>
<tr><td>D4</td><td>Weight positive overflow</td></tr>
<tr><td>D3</td><td>Overflow status</td></tr>
<tr><td>D2</td><td>Display weight negative sign</td></tr>
<tr><td>D1</td><td>Zero</td></tr>
<tr><td>D0</td><td>Stable</td></tr>
<tr><td rowspan="16">40006</td><td rowspan="16">0005</td><td rowspan="16">Error Code 1</td><td>D13-15</td><td colspan="2">Reserve</td></tr>
<tr><td>D12</td><td colspan="2">Perform Remote calibration when prohibited</td></tr>
<tr><td>D11</td><td colspan="2">In hardware protection during calibration</td></tr>
<tr><td>D10</td><td colspan="2">The previous weight point is not calibrated</td></tr>
<tr><td>D9</td><td colspan="2">Out of mini resolution</td></tr>
<tr><td>D8</td><td colspan="2">Weight input exceeds max range</td></tr>
<tr><td>D7</td><td colspan="2">The weight input cannot be zero</td></tr>
<tr><td>D6</td><td colspan="2">Weight calibration is less than zero or the previous calibration point</td></tr>
<tr><td>D5</td><td colspan="2">Loadcell positive overflow when Weight calibrating</td></tr>
<tr><td>D4</td><td colspan="2">Loadcell negative overflow when weight calibration</td></tr>
<tr><td>D3</td><td colspan="2">Weight calibration is unstable</td></tr>
<tr><td>D2</td><td colspan="2">Loadcell positive overflow when zero calibration</td></tr>
<tr><td>D1</td><td colspan="2">Loadcell negative overflow when zero calibration</td></tr>
<tr><td>D0</td><td colspan="2">Zero calibration is unstable</td></tr>
<tr><td>40007</td><td>0006</td><td>Error Code 2</td><td>D15</td><td colspan="2">Hold</td></tr>
</table>

			D14	Prohibit zero when running
			D13	Remote tare operation allow switch is not enabled during remote tare operation
			D12	Does not allow taring in net weight status
			D11	The weight is negative when taring
			D10	Loadcell positive overflow when taring
			D9	loadcell negative overflow when taring
			D8	Unstable when taring
			D7	Does not allow zeroing in net weight status
			D6	The remote zero switch is not enabled during remote zero
			D5	Loadcell positive overflows when zeroing
			D4	Loadcell negative overflow when zeroing
			D3	Unstable when zeroing
			D2	Zero out of range
			D1	Zero unstable when powered on
			D0	Power-on zero is out of range
40008-40010	**0007-0009**	Reserve		
40011	**0010**	Process status flag bit	**D10-15**	Reserve
			D9	**IO** test status
			D8	Printing, (valid when the instrument perform the print operation)
			D7	Reserve
			D6	Simulated operating condition
			D5	Pause
			D4	Slow Stop
			D3	Supply Material
			D2	Lack Material
			D1	Lower level
			D0	Upper level
40012	**0011**	Process status flag bit	**D15**	Wait for stop signal
			D14	Zero zone
			D13	0:Nozzle Up; 1: Nozzle Down
			D12	Push bucket
			D11	Normal feed bucket completed (valid after waiting, zero after starting filling bucket again)
			D10	Alarm
			D9	Weigh OK
			D8	Waiting
			D7	Under Replenish
			D6	Under

			D5	Over
			D4	Fine Feed
			D3	Medium Feed
			D2	Coarse Feed
			D1	Before Feed
			D0	0: Stop; 1: Run
40013	**0012**	Reserve		
40014	**0013**	Status Tips	**0-** No action; **1-** Raise Bucket; **2-** Wait for start signal; **3-** Wait for lower material level; **4-** Delay; **5-** Coarse Feed; **6-** Medium Feed; **7-** Fine Feed; **8-** Free Fall delay; **9-** Free Fall correction; **10-** Over/Under; **11-** Under feed **12-** Over/Under pause; **13-** Raise nozzle; **14-** Waiting; **15-** Weigh OK; **16-** Push bucket; **17-** Wait stop; **18-** Pause; **19-** Batches complete **20-** Wait for stable	
40015	**0014**	Process alarm 1	**D12**	Batches Complete Alarm
			D11	Do not allow filling liquid (reduction scale, current weight below lower limit of material level, in supplying material state)
			D10	Material level parameters are not reasonable
			D9	Decrement protection
			D8	Leakage, when the coarse feed flow rate is lower than the lower limit of the coarse feed flow rate, the instrument default contain leakage, the instrument output buzzer alarm, the main interface prompts the leakage, and stops
			D7	Over/under Pause
			D6	Over/under
			D5	Tare detection error
			D4	Bump Bucket
			D3	OFL when starting
			D2	Do not define the lower nozzle/raise nozzle function, use the step raise nozzle

				function
			D1	There is an undefined IO in the IO module that must be defined
			D0	The formula setting is not reasonable alarm
40016-40018	**0015-0017**	Reserve		
40019-40020	**0018-0019**	Gross weight value (**4** bytes of signed integer)		Read only (floating-point numbers are displayed when the communication switch is turned on)
40021-40022	**0020-0021**	Net weight value (**4** bytes of signed integer)		
40023-40024	**0022-0023**	Tare(**4** bytes signed integer)		
40025-40026	**0024-0025**	Reserve		
40027-40028	**0026-0027**	Display weight value (float point type)		Read Only
40029-40030	**0028-0029**	Gross weight value (**4** bytes signed float point number)		
40031-40032	**0030-0031**	Net weight value (**4** bytes signed float point number)		
40033-40034	**0032-0033**	Tare (**4** bytes signed float point number)		
40035-40036	**0034-0035**	Reserved		
40037-40038	**0036-0037**	Code inside **AD** after filtering		Read Only
40039-40040	**0038-0039**	Loadcell voltage value		
40041-40042	**0040-0041**	Relative zero voltage value		
40043-40044	**0042-0043**	System cumulative weight (high 6 digits)		
40045-40046	**0044-0045**	System cumulative weight (low 9 digits)		
40047-40048	**0046-0047**	System cumulative frequency		
40049-40050	**0048-0049**	Cumulative weight(high 6 bit)		
40051-40052	**0050-0051**	Cumulative weight(low 9 bit)		
40053-40054	**0052-0053**	Cumulative Batches(high 6 bit)		
40055-40056	**0052-0053**	Cumulative Batches(low 9 bit)		
40057 ~ 40058	**0054 ~ 0055**	Waiting weight (previous weight)		
40059 ~ 40090	**0056 ~ 0089**	Reserve		
40091	**0090**	Input status Reserve, readable, read:all 0		
40092	**0091**	Input	**Bit**	**Instructions**

		status area	**D5- D15**	Reserve
			D4	Input **5** status (extended Input **2**)
			D3	Input **4** states (extended input **1**)
			D2	Input **3** status
			D1	Input **2** status
			D0	Input **1** status
40093	**0092**	Output status reserve, readable, read out data as 0		
40094	**0093**	Output status area	Bit	Instructions
			D9-15	Reserve
			D8	Output **9** status (extended output **4**)
			D7	Output **8** status (extended output **3**)
			D6	Output **7** status (extended output **2**)
			D5	Output **6** status (extended output **1**)
			D4	Output **5** status
			D3	Output **4** status
			D2	Output **3** status
			D1	Output **2** status
			D0	Output **1** status
40095 ~ 40100	**0094 ~ 0099**	Reserve		
Basic parameters area, remote editing parameters set to read-write when enabled, otherwise read-only				
40101-40102	**0100-0101**	PWR-On Zero	**0%-99%** of the maximum range**; Initial** value: 0% **(off)**	
40103-40104	**0102-0103**	Remote Zero	Range: **0** (off), **1** (on); Initial value: **1** (on)	
40105-40106	**0104-0105**	Zero range	**1%-99%** of the maximum range**; Initial** value: 20%	
40107-40108	**0106-0107**	Remote Tare	Range: **0** (off), **1** (on); Initial value: **1** (on)	
40109-40110	**0108-0109**	Tare Record	Range: **0** (off), **1** (on); Initial value: **0** (off)	
40111-40112	**0110-0111**	NetSign COR	Range: **0** (off), **1** (correct tare), **2** (returned gross weight); Initial value: **0** (off)	
40113-40114	**0112-0113**	Basic tare	Write tare,read the current tare. Range: **0**~ full scale; Initial value: **0**	
40115-40116	**0114-0115**	STAB Range	Range: **0-99**, initial value: **1**.	
40117-40118	**0116-0117**	STAB Timer	Range: **1-5000ms**, initial value: **1000ms**.	
40119-40120	**0118-0119**	TrZero Range	Range: **0-99**, initial value: **1**.	
40121-40122	**0120-0121**	TrZero Time	Range: **1-5000** milliseconds, Initial value: **1000**	
40123-40124	**0122-0123**	Digit-Filter	Range: **0-9**, initial value: **4**	
40125-40126	**0124-0125**	Adv. Filter	Range: **0-99D**, initial value: **0**	
40127-40128	**0126-0127**	**AD** Sample Rate	Range: **0-9** (corresponds to **0-50**; **1-60**; **2-100**; **3-120**; **4-200**; **5-240**; **6-400**; **7-480**; **8-800**; **9-960**) Initial value: **200Hz**	
40129-40130	**0128-0129**	Input range	Range: **0-5** (corresponds to **0:0-5mV**; **1:0-10mV**; **2:0-15mV**,) **Initial value:** 1 **(0-10mV)**	
40131 ~ 40200	**0130 ~ 0199**	Reserve		
Weight and calibration area, the weight parameters and calibration can be set after the remote calibration be On, otherwise read only				
40201-40202	**0200-0201**	Unit	Range: **0-3**; **0-t**, **1-kg**, **2-g**, **3-lb**	

40203-40204	**0202-0203**	Decimal	Range: **0-4**; **0-0**, **1-0.0**, **2-0.00**, **3-0.000**, **4-0.0000**	
40205-40206	**0204-0205**	Division	Range: **1,2,5,10,20,50,100,200,500**	
40207-40208	**0206-0207**	Full scale	Range: **0**- division *__200000__	
40209-40210	**0208-0209**	Reserve		
40211-40212	**0210-0211**	Auto Capture	Write **1** only; Write **1** to calibrate zero. Read: Current millivolts of the loadcell. Fixed **4** decimal points.	
40213-40214	**0212-0213**	Key In mV	Range: **0-150000**; Write millivolts	
40215-40216	**0214-0215**	Weight CP1	Write weight value to calibrate weight calibration point **1**	Read as the relative millivolts of the calibration point.
40217-40218	**0216-0217**	Weight CP2	Write the weight value to calibrate weight calibration point **2**	
40219-40220	**0218-0219**	Weight CP3	Write the weight value to the calibration weight point **3** calibration	
40221-40222	**0220-0221**	Weight CP4	Write the weight value to calibrate weight calibration point **4**	
40223-40224	**0222-0223**	Weight CP5	Write the weight value to calibrate weight point calibration **5**	
40225-40226	**0224-0225**	LC mV/V	Write using the actual sensitivity of the loadcell for theoretical value calibration	
40227-40228	**0226-0227**	LC Capacity	Write the total loadcell range for theoretical calibration	
40229-40230	**0228-0229**	Use T-CAL	Write **1** to enable theoretical calibration, write **0** to use calibration data	
40231-40232	**0230-0231**	CAL Correct	Write coefficient to correct calibration, write data integer, the system default writed data with **5** decimal points	
40233 ~ 40500	**0232 ~ 0499**	Reserve		
Recipe parameter area, read and write after remote editing is turned on				
40501-40502	**0500-0501**	Recipe ID	Initial value **1**; Range: **1 to 20**	
40503-40504	**0502-0503**	Target	Weight value write range: ≤ maximum range (communication floating-point switch is turned on, floating-point number is displayed)	
40505-40506	**0504-0505**	Co-F Remain		
40507-40508	**0506-0507**	Me-F Remain		
40509-40510	**0508-0509**	Free Fall		
40511-40512	**0510-0511**	NearZero Band		
40513-40514	**0512-0513**	Over Value		
40515-40516	**0514-0515**	Under Value		
40517-40518	**0516-0517**	Decrement protection threshold		
40519-40520	**0518-0519**	Co-Fi Mini-Flow		
40521-40522	**0520-0521**	Nozzle Up SP1		

40523-40524	**0522-0523**	Nozzle Up SP2	
40525-40526	**0524-0525**	Supply Empty	
40527-40528	**0526-0527**	Supply Full	
40529-40530	**0528-0529**	Fast Wt Refresh	
40531-40550	**0548-0549**	Reserve	
40551-40552	**0550-0551**	Tare PDLY	Initial value: **0.5**; Range: **0 to 99.9** (s)
40553-40554	**0552-0553**	Co-F Inhibit T	Initial value: **0.9**; Range: **0 to 99.9** (s)
40555-40556	**0554-0555**	Me-F Inhibit T	Initial value: **0.9**; Range: **0 to 99.9 (s)**
40557-40558	**0556-0557**	Fi-F Inhibit T	Initial value: **0.9**; Range: **0 to 99.9 (s)**
40559-40560	**0558-0559**	FreeFall DLY	Initial value: **0.5**; Range: **0 to 99.9 (s)**, valid in multi decrement mode
40561-40562	**0560-0561**	Result Wait T	Initial value: **0.5**; Range: **0 to 99.9 (s)**
40563-40564	**0562-0563**	Nozzle Up PDLY	Initial value: **0.5**; Range: **0 ~ 99.9(s)**,single increments, valid in multi increment mode
40565-40566	**0564-0565**	Nozzle Up DLY	Initial value: **0.5**; Range: **0 ~ 99.9 (s)**, single increments, multi increments are valid
40567-40568	**0566-0567**	Move Bucket DLY	Initial value: **0.5**; Range: **0 to 99.9 (s)**, valid for single- increment
40569-40600	**0568-0599**	Reserve	
40601-40602	**0600-0601**	Ref. Counts	Initial value: **0**; Range: **1 to 99**.
40603-40604	**0602-0603**	CORR. Range	Initial value: **2.0**; Range: **0 to 9.9** (unit: %)
40605-40606	**0604-0605**	CORR.Degree	Initial value: **1**; Optional: **0:100%** correction; **1:50%** correction; **2:25%** correction
40607-40608	**0606-0607**	Result Detect	Initial value: **0**; Optional: **0:** off; **1:** Detection not paused; **2:** Detect and Pause
40609-40610	**0608-0609**	O/U Alarm T	Initial value: **2.0**; Range: **0.0 to 99.9 (s)**
40611-40612	**0610-0611**	Max. Counts	Initial value: **1**; Range: **1 to 99**.
40613-40614	**0612-0613**	Under Replenish valid time	Initial value: **0.5**; Range: **0 to 99.9 (s)**
40615-40616	**0614-0615**	Fill-ON T	Initial value: **0.5**; Range: **0 to 99.9 (s)**
40617 ~ 40618	**0616 ~ 0617**	Fill-OFF T	Initial value: **0**; Optional: **0:** off; **1:** On
40619-40620	**0618-0619**	Tare Detection	Weight written range:≤ maximum range
40621-40622	**0620-0621**	Tare Up Limit	Weight written range: ≤ maximum range
40623-40624	**0622-0623**	Tare Low Limit	Initial value: **0**; Optional: **0:** off; **1:** On
40625-40626	**0624-0625**	Bucket Tare	Weight writing range: ≤ maximum range
40627-40628	**0626-0627**	B Nozzle PROT	Initial value: **0**; Optional: **0:** off; **1:** On
40629-40630	**0628-0629**	Bump Weight	Weight written range: ≤ maximum range
40631-40632	**0630-0631**	Bump Alarm T	Initial value: **2.0**; Range: **0 to 99.9 (s)**
40633-40700	**0632-0699**	Reserve	
40701-40702	**0700-0701**	Fill Speed CTR.	**0:** Single Ctrl; **1:** Single Ctrl
40703-40704	**0702-0703**	Result Check	0: Stable Mode; 1: Delay Mode; 2: Stable&Delay:
40705-40706	**0704-0705**	Filling mode	**0:** Gross Filling **1:** Net Filling
40707-40708	**0706-0707**	Fill Permit REQ	Initial value: **0**; Optional: **0:** Disable **1:** Enable
40709-40710	**0708-0709**	Fill 1st Action	Initial value: **0**; Optional: **0:** tare first; **1:** lower

			nozzle first
40711-40712	**0710-0711**	M-Fill To ACUM	Initial value: **0**; Optional: **0:** Disable **1:** Enable
40713-40714	**0712-0713**	Proess FIRs CFG	Initial value: **0**; Optional: **0:** Disable **1:** Enable
40715-40716	**0714-0715**	Filling FIR	Initial value: **5**; Range: **0 to 9.**
40717-40718	**0716-0717**	Wait Result FIR	Initial value: **7**; Range: **0 to 9.**
40719-40720	**0718-0719**	Bucket Move FIR	Initial value: **3**; Range: **0 to 9.**
40721-40722	**0720-0721**	Feeding Switch	Initial value: **1**; Optional: **0:** Disable **1:** Enable
40723 ~ 40800	**0722 ~ 0799**	Reserve	
IO parameter setting area, readable-writable			
40801	**0800**	Input 1 Function definition	**0:**None; **1:** Start; **2:** E-Stop; **3:** Stop; **4:** Pause; **5:** Zero; **6:** Clear Alarm; **7:** Change Recipe; **8:** Print; **9:** P_EMPTY_LINE r; **10:** Bucket ->Permit; **11:** Tare/Fill Star; **12:** Nozzle Down OK; **13:** Supply Full; **14:** Supply NotEmpty; **15:** M Co-Fill (LS); **16:** M Fi-Fill (LS)); **17:** Start/EStop (LS) **18:** Start/Stop (LS) **19:** Run Once **;** **20:** Simulation Run
40802	**0801**	Input 2 Function definition	
40803	**0802**	Input 3 Function definition	
40804	**0803**	Input 4 Function Definition	
40805	**0804**	Input 5 Function definition	
40806	**0805**	Output 1 function definition	**0:** None; **1:** Running **2:** Stopped **3:** Co-Fill **4:** Me-Fill **5:** Fi-Fill **6:** Wait Result **7:** DONE **8:** Supply Empty **9:** FILL Supplement **10:** Over/Under **11:** Alarm **12:** NearZero **13:** Nozzle Bumped **14:** Bucket Push **15:** Batch complete
40807	**0806**	Output 2 Function definition	
40808	**0807**	Output 3 Function definition	
40809	**0808**	Output 4 Function definition	
40810	**0809**	Output 5 Function definition	
40811	**0810**	Output 6	

		Function definition	**16:** Nozzle Down/Up **17:** Nozzle Up Step1 **18:** Nozzle Up Step2 **19:** COM Heartbeat
40812	**0811**	Output 7 Function definition	
40813	**0812**	Output 8 Function definition	
40814	**0813**	Output 9 Function definition	
40814-40900	**0814-0899**	Reserve	
40901	**0900-0901**	Set batch times	Initial value: **0**; Range: **0-9999**
40902	**0902-0903**	Remain batches times	
40903-41000	**0904-0999**	Reserve	
41001-41002	**1000-1001**	Target 1	Weight value written range: ≤ maximum range
41003-41004	**1002-1003**	Target 2	
……	**……**	……	
41040	**1039**	Target 20	
41041-42000	**1040-1999**	Reserve	
42001-42002	**2000-2001**	Recipe 1 Cumulative weight (high 6 bit)	Write **1** Clear the current cumulative
42003-42004	**2002-2003**	Recipe 1 Cumulative weight (low 9 bit)	
42005-42006	**2004-2005**	Recipe 1 Cumulative weight	
42007-42008	**2006-2007**	Recipe 2 Cumulative weight (high 6 bit)	
42009-42010	**2008-2009**	Recipe 2 Cumulative Weight (low 9 bit)	
42011-42012	**2010-2011**	Recipe 2 Cumulative weight	
……	**……**	……	
42115-42116	**2114-2115**	Recipe 20 Cumulative weight (high 6 bit)	
42117-42118	**21116-2117**	Recipe 20 Cumulative Weight (high 6 bit)	
42119-42120	**2118-2119**	Formula 20 cumulative times	
Communication parameter setting area, readable and writable			
48001	**8000**	COM0 ID	Slave number of serial port **0**; Range: **01-99**
48002	**8001**	**COM0** Baud rate	Initial value: **5-38400**, range: **0-7** corresponding to: **0-1200**, **1-2400**, **2-4800**, **3-9600**, **4-19200**, **5-38400**, **6-57600**, **7-115200**;
48003	**8002**	**COM0** Protocol	Initial value: **0-Modbus RTU**, range: **0-Modbus RTU**, **1-Modbus Ascii**, **2-Cont-A**, **3-Cont-B**, **4-r-Cont**, **5-rE-Cont**, **6-YH**, **7-Print**
48004	**8003**	**COM0** Data	Initial value: **1** (**8E1**);

		Format	Range: **0-8N1**, **1-8E1**, **2-8O1**, **3-7E1**, **4-7O1**
48005	**8004**	**COM0** DwordFormat	Initial value :**0 (AB-CD)** Range: **0-ab-cd**, **1-CD-AB**.
48006	**8005**	**COM0** Send Gap	Initial value: **20ms,** range 0-1000ms
48007	**8006**	Float Data SW	Initial value: Disable, range: 0: Disable, 1: Enable
4800848020	**80078019**	Reserve	
48021	**8020**	COM1 ID	Refer **to COM0** parameters
48022	**8021**	**COM1** Baud rate	
48023	**8022**	**COM1** Protocol	
48024	**8023**	**COM1** Data Format	
48025	**8024**	**COM1** DwordFormat	
48026	**8025**	**COM1** Send Gap	
48027	**8026**	**COM1 RS485/Rs232**	Initial value: **1-RS485;** Range**: 0-RS232; 1-RS485**
48028 ~ 48100	**8027 ~ 8099**	Reserve	
48101	**8100**	NetCOM Protocol	The protocols are **0-Modbus/TCP**, **1-Cont-A/TCP**, **2-Cont-B/TCP**, **3-r-Cont/TCP**, **4-rE-Cont/TCP**, and **5-YH/TCP**. When **Ethernet/IP** or **Profinet** is selected, this parameter cannot be set
48102	**8101**	NetCOM DwordFormat	For standard network ports, can set **0-AB-CD**, **1-CD-AB** When **Ethernet/IP** or **Profinet** is selected, this parameter cannot be set
48103	**8102**	NetCOM Send interval	The communication mode is **1-Cont-A/TCP**, **2-Cont-B/TCP**, **3-r-Cont/TCP**, **4-rE-Cont/TCP, 5-YH/TCP**. This parameter is used to set the interval for continuous transmission. Initial value: **20ms**, range from **0** to **1000ms**
48104-48107	**8103-8106**	IP COnfig	Initial value: **192.168.0.100,** The order is the first to fourth IP
48108-48111	**8107-8110**	Target **IP**	Initial value: **192.168.0.101,** The order is the first to fourth IP
48112	**8111**	NetCOM Socket	Initial value: **502**, range: **0-65535**, set the network communication port number
48113	**8112**	Write Enable	Initial value: Disable, range: 0: Disable, 1: Enable
48114-48200	**8113-8199**	Reserved, readable, read：all 0	
48201	**8200**	HeaderLines	Range: **0-4**, select how many header lines to use
48202	**8201**	EnderLines	Range: **0-4**, select how many tailer lines to use
48203	**8202**	Print interval	Range: **0-99**, the number of lines spaced between each print
48204	**8203**	Print content	Initial value: **0**. Displayed weight. Range: **0-4**, optional: **0**, displayed weight, **1**, gross weight, **2**, net weight, **3**, net weight + tare (two lines), **4**,

			all information (gross weight + net weight + tare)
48205	**8204**	Print language	**0**: English **1**: Chinese
48206	**8205**	Information line selection	Range: **1-8**, corresponding to header information **1-4** and tail information **1-4**. **0** after power-on. After writing, read is the written value
48207-48222	**8206-8221**	The character content of the printed message (**16** characters)	**Ascii** codes support **0-9**, **a-z**, **A-Z**, 'space', and '-'
48221 ~ 48250	**8222 ~ 8249**	Reserved, readable, read:all 0	
48251-48256	**8250-8255**	Bluetooth device name **6** characters	Only the **Ascii** codes of **0-9**, **a-z**, **A-Z**, 'space', and '-' are supported
48257 ~ 48280	**8256 ~ 8279**	Reserved, readable, read:all 0	
48281	**8280**	Language	**0**: Chinese **1**: English
48282	**8281**	year	
48283	**8282**	month	
48284	**8283**	day	
48285	**8284**	clock	
48286	**8285**	minute	
48287	**8286**	second	
48288	**8287**	ScreenSleep	Initial value: 600; Range: 0-3600s
48289	**8288**	Standard IO mode	0:low level valid
48290	**8289**	Extended IO mode	0: Low level valid
48291	**8290**	Scale Structure	0: Single increment 1: Multi increment 2: Multi decrement
48292 ~ 48300	**8291 ~ 8299**	Reserve, readable, read: all 0	
I/O test parameters, readale-writable			
48301	**8300**	**I/O** test mode	Parameter range: **0-1**, 0**:** exit I/O **test** mode, 1: Input serial port I/O test **mode**, must closed after test completed,then the instrument can enter the normal state.
48302	**8301**	Input test **1**	Read **0** means input invalid, and read **1** means input valid. Writing any value is invalid and only works in IO test mode
48303	**8302**	Input test **2**	
48304	**8303**	Input Test **3**	
48305	**8304**	Input **1** test	
48306	**8305**	Input **2** Test	
48307 ~ 48350	**8306 ~ 8349**	Reserve	
48351	**8350**	Output **1** Test	Range: **0-1**, write: **0**: off, **1**: output valid(only valid in **IO** test mode), read as the current **IO** port status, **0**: off, **1**: on
48352	**8351**	Output **2** Test	
48353	**8352**	Output **3** Test	
48354	**8353**	Output **4** Test	
48355	**8354**	Output **5** Test	
48356	**8355**	Output **1** Test	

48357	**8356**	Output **2** Test	
48358	**8357**	Output **3** Test	
48359	**8358**	Output **4** Test	
48360 ~ 48600	**8359 ~ 8599**	Reserve	
Function operation class address area (corresponding to coil function), readable-writable			
48601	**8600**	Zero	Write **1** perform the operation Read:all 0
48602	**8601**	Tare	
48603	**8602**	Clear tare	
48604	**8603**	Gross/net weight switch	
48605	**8604**	Zero Calibrate	
48606	**8605**	Print	
48607	**8606**	Feed Paper	
48608	**8607**	Start	
48609	**8608**	Slow Stop	
48610	**8609**	E-Stop	
48611	**8610**	Pause	
48612	**8611**	Clear Alarm	
48613	**8612**	Select recipe	
48614	**8613**	Tare/Start Filling	
48615	**8614**	Lower nozzle	
48616	**8615**	Manual Coarse Feed	
48617	**8616**	Manual Fine Feed	
48618	**8617**	Manual run Once	
48619	**8618**	Clear accumulation	
48620 ~ 48900	**8619 ~ 8899**	Reserve	
Reset parameter area			
48901	**8900**	Reset all parameter	Write **1** perform the corresponding reset Operation. Read:all 0
48902	**8901**	Reset uncalibrated parameters	
48903	**8902**	Reset calibration parameters	
48904	**8903**	Reset Basic parameters	
48905	**8904**	Reset I/O definition	
48906	**8905**	Reserve	
48907	**8906**	Reset apply parameters	
48908	**8907**	Communication parameter reset	
48909	**8908**	Reset Recipe parameter	
48910 ~ 48980	**8909 ~ 8979**	Reserve	
48981-48988	**8980-8987**	Edit Boot **logo** characters **1-8** (**8**	The order corresponds to the first **1-8** characters of the boot logo, need to

		characters)	write **Ascii** code, range: **0-9**,**A-Z**,**a-z**, space, '-'
48989 ~ 49000	**8988 ~ 8999**	Reserve	
Instrument System information area, read-only area			
410001	**10000**	Software version (high byte)	
410002	**10001**	Software version (low byte)	If the read is **10000**, **version 01.00.00**
410003	**10002**	Compile time (year)	
410004	**10003**	Compile time (month day)	
410005-410017	**10004-10016**	Instrument serial port **13** characters	
410018-410029	**10017-10028**	Instrument code **12** characters	
410030	**10029**	Reserve	
410031-410040	**10030-10039**	Instrument model number **10** characters	
410041	**10040**	Attach board **01** information	
410042	**10041**	Attach board **02** information	
410043 ~ 410100	**10042 ~ 10099**	Reserve	
410101-410106	**10100-10105**	**MAC1** address of instrument	
410107-410112	**10106-10111**	Reserved	
410113-410118	**10112-10117**	Bluetooth **MAC** address	
410119 ~ 410200	**10118-10199**	Reserve	
410201	**10200**	Basic parameter remote edit	Switch status bit, read only: Read: **0**, Disable; **1**, Enable
410202	**10201**	Basic parameter password protection	
410203	**10202**	Remote Calibration	
410204	**10203**	Calibration Hardware protection	
410205	**10204**	Calibrated Password protection	
410206	**10205**	Recipe parameters remote edit	
410207	**10206**	Recipe parameters Password protection	
410208	**10207**	communication parameters remote edit	
410209	**10208**	Communication parameter password protection switch	
410210	**10209**	System maintenance parameter remote edit	
410211	**10210**	System maintenance parameters password protection	
Coil address			
0x0001	**0000**	Zero	The contents are readable and writable coils Writing ON is valid
0x0002	**0001**	Tare	
0x0003	**0002**	Clear tare	

0x0004	**0003**	Gross/Net weight switch	Read as **0**
0x0005	**0004**	Zero	
0x0006	**0005**	Print	
0x0007	**0006**	Print feed paper	
0x0008	**0007**	Start	
0x0009	**0008**	Slow Stop	
0x0010	**0009**	E-Stop	
0x0011	**0010**	Pause	
0x0012	**0011**	Clear Alarm	
0x0013	**0012**	Select recipe	
0x0014	**0013**	Tare/start filling liquid	
0x0015	**0014**	Lower nozzle complete	
0x0016	**0015**	Manual coarse feed	
0x0017	**0016**	Manual fine feed	
0x0018	**0017**	Run once manually	
0x0019	**0018**	Clear accumulations	
0x0020~0x0300	**0019 ~ 0299**	Reserve	
0x0301	**0300**	Reset all parameters	This area only writes Write **ON** to perform reset operation Read **0**
0x0302	**0301**	Uncalibrated parameter reset	
0x0303	**0302**	Calibration reset	
0x0304	**0303**	Basic parameters reset	
0x0305	**0304**	**I/O** Definition Reset	
0x0306	**0305**	Reserve	
0x0307	**0306**	Application parameters reset	
0x0308	**0307**	Communication parameters reset	
0x0309	**0308**	Recipe parameters reset	
0x0310~0x0400	**0309-0399**	reserve	
0x0401	**0400**	Input **1** status	Read only area Read Return each input port status bit **0**: invalid; **1** valid
0x0402	**0401**	Input **2** status	
0x0403	**0402**	Input **3** status	
0x0404	**0403**	Input **1** status	
0x0405	**0404**	Input **2** status	
0x0406~0x0450	**0405 ~ 0449**	reserve	
0x0451	**0450**	Output **1** status	Read only area Read return each output status bit **0**: invalid; **1** valid
0x0452	**0451**	Output **2** status	
0x0453	**0452**	Output **3** Status	
0x0454	**0453**	Output **4** Status	
0x0455	**0454**	Output **5** status	
0x0456	**0455**	Expand output **1** status	
0x0457	**0456**	Expand output **2** status	
0x0458	**0457**	Expand output **3** status	
0x0459	**0458**	Expand output **4** status	

0x0460~0x0500	**0459 ~ 0499**	Reserve	
0x0501	**0500**	Remote Editing (basic parameters)	Read only parameter area
0x0502	**0501**	Password Protection (basic parameters)	
0x0503	**0502**	Remote calibration (calibration parameters)	
0x0504	**0503**	Hardware Protection (calibration parameters)	
0x0505	**0504**	Password protection (calibration parameters)	
0x0506	**0505**	Remote Editing (apply parameters)	
0x0507	**0506**	Password Protection (application parameters)	
0x0508	**0507**	Remote Editing (communication parameters)	
0x0509	**0508**	Password Protection (communication parameters)	
0x0510	**0509**	Remote editing (System maintenance parameters)	
0x0511	**0510**	Password protection (system maintenance parameters)	
0x0512~0x0800	**0511 ~ 0799**	Reserve	

11.2 Cont-A **(continuous send** -CB920)

GMC-X1LF Serial port protocol When "Continuous Send A **(CB920)**" is selected, data is continuously sent in the following format.

Status	**,**	Content	**0/1**	+/-	Display Value	Unit	**CR**	**LF**
2-bytes	**2C**	**2** bytes	**30**	**2B/2D**	7-bytes	**2**-bytes	**0D**	**0A**

Where:

Status -- **2** bytes**, OL**(overflow) : **4FH 4CH**; **ST**(stable):**53H 54H**; **US**(unstable):**55H 53H**

Gross weight **-- 2** bytes**, GS**(gross weight) **: 47H 53H; NT**(net weight) **: 4EH 54H;**

0/1-1 byte**, (30H/31H)** sent alternately.

Units -- **2** bytes, such as **kg: 6BH 67H; g:20H 67H, etc**

Example: When the instrument automatically sends the following frame of data

53 54 2C 47 53 30 2B 20 20 20 20 32 35 34 33 39 0D 0A

the current instrument status: stable, gross weight, data value is positive, the current weight value is **254** kg

11.3 Cont-B **(Continuous** transmission **-tt)**

When the serial port protocol of **GMC-X1LF** is set to "Cont-**B (tt)**", the collected data will be automatically sent to the host

STX	Status **1**	Status **2**	Status **3**	Display Value	Loadcell voltage	**CR**	Checksum
02H	**1** byte	**1** byte	**20H**	**6** bytes	**6** bytes	**0D**	**1** byte

Status **1**:

bit7	**bit6**	**bit5**	**bit4**		**bit3**	**bit2**		**bit1**	**bit0**
Fixed: **0**			**t**	**0**	**0**	**0**	**0**	**1**	**0**
			kg	**0**	**1**	**0.0**	**0**	**1**	**1**
			g	**1**	**0**	**0.00**	**1**	**0**	**0**
			lb	**1**	**1**	**0.000**	**1**	**0**	**1**
						0.0000	**1**	**1**	**0**
			Weight Unit			Decimal point			

Status **2**:

bit7	**bit6**	**bit5**	**bit4**	**bit3**	**bit2**	**bit1**	**bit0**
Reserve	Reserve	Reserve	0- Weight	1- Unstable	1- Overflow	1- negative	1- Net weight
Fixed 0	Fixed 1	Fixed 1		0- Stable	0- Normal	0- positive	0- Gross weight

11.4 r-Cont

GMC-X1LF serial port protocol when "**r-Cont**" is selected, the collected data is automatically sent to the host machine in the following format without sending any commands to the weight transmitter.

STX	Scale No.	Channel No.	Status 1	Status **2**	Display Values	**CRC**	**CR**	**LF**
02H	2-bytes	**31H**	**1** byte	**1** byte	**6** bytes	**2** bytes	**0D**	**0A**

Instruction:

Scale No. - **2** bytes, ranging from **01 to 99**

Status **1** -- **1** byte

bit7	**bit6**	**bit5**	**bit4**		**bit3**	**bit2**		**bit1**	**bit0**
Fixed:**0**			**t**	**0**	**0**	**0**	**0**	**0**	**0**
			kg	**0**	**1**	**0.0**	**0**	**0**	**1**
			g	**1**	**0**	**0.00**	**0**	**1**	**0**
			lb	**1**	**1**	**0.000**	**0**	**1**	**1**
						0.0000	**1**	**0**	**0**
			Weight unit			Decimal point			

Status **2--1** bit

D6	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
Fixed: **1**.	Fixed : **0**	Gross:**0**; Net:**1**;	**0**: positive **1**: negative	**0**: Non-zero **1**: zero	**0**: Normal **1**: Overflow	**0**: unstable **1**: Stable

Weight value - **6** bytes unsigned number; Return "Space space **OFL** space" when the weight is positive (negative) overflowed

CRC - **2** bytes, checksum

All values before the check digit are added and converted to decimal data, then the last two digits are converted to **ASCII** (tens first, ones after). For example

If you have the following frame of data:

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

The sum of 02 to 4B is 187 (**Hex**) and **converted to 391 in decimal form.** It can be calculated that the check code for this data frame are **39 and 31.**

For example:

The current instrument automatically returns data: **02 30 31 31 40 41 20 20 20 37 30 30 32 34 0D 0A**

the current status of the instrument: stable, the weight value is positive, and the current weight value is **700**.

11.5 rE-Cont

In this way, there is no need to send any command to the weighing display, and the display automatically sends the collected data to the supremacist.

Return data frame format description:

Status	,	Content	,	+/-	Display Value	Unit	**CR**	**LF**
2-bytes	**2C**	**2** bytes	**2C**	**2B/2D**	7-bytes	**2** bytes	**0D**	**0A**

Instruction:

Status -- **2** bytes, **OL**(overflow):**4FH 4CH; ST**(stable):**53H 54H; US**(unstable):**55H 53H**

Content **-- 2** bytes, **GS(**gross weight) : **47H 53H; NT**(net weight) : 4EH 54H;

Display value **- 7** bytes, including a decimal point, the upper part is a space if no decimal point

Unit -- **2** bytes, such as **kg: 6BH 67H; g:20H 67H; t:20H 74H; lb:6CH 62H**

For example:

When the weighing display automatically sends the following frame of data:

53 54 2C 47 53 2C 2B 20 20 20 20 38 30 38 20 74 0D 0A

Means:the current status is stable, the data value is positive, and the display value is **808t**

11.6 YH**(Protocol)**

If the serial port protocol of GMC-X1LF is set to YH, data is transmitted in the following format. Under this protocol, the data is output in ASCII code, and each frame data is composed of 9 groups (including decimal points). Data transmission first low then high, there is a group of delimiter "=" between each frame data, send data for gross weight, such as the current gross weight 70.15, continuously send 51.0700=51.0700...

For example: 123.9

Bit0	**Bit1**	**Bit2**	**Bit3**	**Bit4**	**Bit5**	**Bit6**	**Bit7**	**Bit8**
=	**9**	**.**	**3**	**2**	**1**	**0**	**0**	**0**

Where: the high position is insufficient to fill **0**, the decimal point accounts for **1** byte, and **Bit8** is a negative sign "-" when negative.

11.7 **PROFINET** Communication

The GMC-X1LF display has two PROFINET-IO bus connection ports, NET1 and

NET2, which can be connected to the PROFINET bus as a ProFINET-IO slave station.

The instrument IP address can be viewed in the Data-Trans - NetCOM - IP Config; MAC address in the Maintenance - System info -MAC address item to view.

11.7.1 I/O Status

The GMC-X1LF provides multi-byte IO and outputs in two modules. The master station can read and control the status of the weighing display through these I/ O. In the PN communication mode, three sets of IO module addresses are provided: standard Edition, Lite Edition, and Lite Edition 2. The corresponding version can be selected through the network port parameter -GSD file type. The addresses of the IO modules of each version are as follows:

11.7.1.1 I/O Module address of the Standard version

Module 1: Weight and status parameters (read register)

Offset	Parameter name	Data type	Parameter Description
0	Displayed weight	**DInt**	Currently displayed Weight, integer
4	Weight Of Reduction method	**DInt**	Reduction method running weight, integer type
8	Weight status flag bit	**Word**	D13-D15 Reserve
			D12: Bipolar
			D11: Calculate weight by using theoretical values, (prompt user when calculating weight using theoretical value)
			D10: **ADC** failure, (**ADC** initialization failure or sampling interruption beyond expected)
			D9: Currently displayed net weight, (distinguish which weight is currently displayed)
			D8: millivolt stable,(millivolt stable sign when calibration)
			D7: Loadcell negative overflow, lower than the loadcell voltage allowed range
			D6: Loadcell positive overflow, beyond the loadcell voltage allowable range
			D5: Weight negative overflow, weight less than "-(Max range +**9d**)"
			D4: Weight positive overflow, weight greater than "Max range +**9d**"
			D3: Overflow status, (abnormal weight or loadcell)
			D2: display weight is negative
			D1: zero, (weight in **the** range of 0+/- 1/4 **d)**
			D0: Stable
10	Error code **1**	**Word**	D13-D15 Reserved
			D12: Remote calibration When disabled
			D11: In hardware protection during calibration
			D10: The previous weight point is not calibrated
			D9: Beyond minimum resolution (less than 0.1uV **per division)**
			D8: Weight input exceeds the maximum range
			D7: The weight input cannot be zero
			D6: Weight calibration is less than zero or the previous calibration point
			D5: The loadcell positive overflow during weight calibration
			D4: The loadcell negative overflow during weight calibration

			D3: Weight calibration is unstable
			D2: Loadcell positive overflow during zero calibration
			D1: Loadcell negative overflow during zero calibration
			D0: zero calibration is unstable
12	Error code **2**	**Word**	**D15** Reserve
			D14: Disable zero when run
			D13: The remote tare operation allow switch is not enabled during remote tare operation
			D12: The tare is not allowed in the net weight state
			D11: The weight is negative when taring
			D10: The loadcell positive overflow when taring
			D09: The loadcell negative overflow when taring
			D08: Unstable when taring
			D07: Does not allow zero in net weight status
			D06: The remote zero switch is not enabled during remote zero
			D05: The loadcell positive overflow when zeroing
			D04: The loadcell negative overflow when zeroing
			D03: Unstable when zeroing
			D02: Zero out of range
			D01: Power-on zero unstable
			D00: Power-on zero out of range
14	Process status flag bit	**Word**	D10-D15 Reserve
			D9: **IO** test status
			D8: Printing, (valid when instrument perform a printing operation)
			D6-D7: Reserved
			D5:1: Pause
			D4:1: Slow Stop
			D3:1: Supply material
			D2:1: Lack material
			D1: Lower level
			D0: Upper level
16	Process status flag bit **2**	**Word**	**D15**: Wait for the stop signal
			D14: Zero Zone**:1**
			D13: Nozzle Down:**1**, Nozzle Up: **0**
			D12: Push bucket
			D11: normal filling liquid completed (valid after waiting, zero after starting filling liquid again)
			D10: Alarm
			D9: Weigh OK
			D8: Waiting
			D7: Under Replenish Material
			D6: Under
			D5: Over
			D4: Fine Feed
			D3: Medium Feed
			D2: Coarse Feed
			D1: Before Feeding
			D0: Run: 1, Stop: 0

18	Status Tips	**Word**	**0-** No action 1- Bump bucket 2- Wait for the start signal 3- Wait for the lower level 4- Delay 5- Coarse Feed 6- Medium Feed 7- Fine Feed 8- Free fall delay 9- Free fall correction 10- Over/under 11- Under replenish 12- Over/under Pause 13- Raise nozzle 14- Waiting 15- Weigh OK 16- Pushing bucket 17- Wait for stop 18- Pause 19- Batches completed 20- Wait for stable
20	Process alarm	**Word**	D13-D15 Reserve
			D12: Batches complete alarm
			D11: Do not allow filling liquid (reduction method, the current weight **is** below the lower limit of the material level**,** in the supply material state)
			D10: The material level is not set properly
			D9: Decrement protection
			D8: material leakage, when the coarse feeding flow is lower than the lower limit of coarse feeding flow, the instrument has the default material leakage, the instrument output buzzer alarm, the main interface prompts the material leakage, and stops
			D7: Over/under pause
			D6: Over/under
			D5: Tare detection error
			D4: Bump Bucket
			D3: OFL when starting
			D2: The gun/gun lifting function is not defined, use the step raise nozzle function
			D1: There is an undefined IO in the IO module that must be defined
			D0: Formula setting unreasonable alarm
24	Gross Weight	**DInt**	Gross weight value, signed, integer
28	Net weight	**DInt**	Net weight value, signed, integer
32	Tare	**DInt**	Tare, signed, integer
36	Current weight	**Float**	Current weight value, floating point type
40	Gross weight	**Float**	Gross weight value, floating point type
44	Net weight	**Float**	Net weight value, floating point type
48	Tare	**Float**	Tare value, floating point type
52	Code in **AD** after filtering	**DWord**	Inside code of the **ADC** after filtering
56	Loadcell voltage value data	**DWord**	Signed numbers, integers, four decimal points
60	Relative zero voltage value data	**DWord**	Signed numbers, integers, four decimal points
64	System accumulates higher 6 digits	**DWord**	Unsigned number, integer

68	System accumulates lower 9 digits	**DWord**	Unsigned number, integer
72	System count	**DWord**	Unsigned number, integer
76	Formula weight 6 point higher	**DWord**	Unsigned number, integer
80	Formula weight 9 point lower	**DWord**	Unsigned number, integer
84	Formula ACUM Times	**DWord**	Unsigned number, integer
88	Waiting weight	**DWord**	Unsigned number, integer
92	Input status area	**Word**	**D5-D15**: Reserved
			D2: Input **5** status (extended input **2**)
			D1: Input **4** status (extended input **1**)
			D0: Input **3** status
			D1: Input **2** status
			D0: Input **1** status
94	Output status area	**Word**	D9-D15 Reserved
			D8: Output **9** status (extended output **4**)
			D7: Output **8** status (extended output **3**)
			D6: Output **7** status (extended output **2**)
			D5: Output **6** states (extended output **1**)
			D4: Output **5** status
			D3: Output **4** status
			D2: Output **3** status
			D1: Output **2** status
			D0: Output **1** status
96	Communication heartbeat	**DWord**	When PN communicates, the value of the communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz.

Module 2: Calibration parameters (Read/write register)

Offset	Parameter name	Data type	Instructions
0	Automatically Obtain zero point	**DWord**	Current Loadcell voltage
4	Gain Calibration point **1**	**DWord**	Relative voltage value **1** (loadcell input - zero point voltage)
8	Gain Calibration point **2**	**DWord**	Relative voltage value **2** (loadcell input - Calibration point **1** voltage)
12	Gain Calibtation point **3**	**DWord**	Relative voltage value **3** (loadcell input - Calibration point **2** voltage)
16	Gain Calibration point **4**	**DWord**	Relative voltage value **4** (loadcell input - Calibration point **3** voltage)
20	Gain Calibration point **5**	**DWord**	Relative voltage value **5** (Loadcell input - Calibration point **4** voltage)
0	Automatically Obtain zero point	**DWord**	Current Loadcell voltage (write 1 to communication address, perform automatic zero calibration)
4	Gain Calibration point **1**	**DWord**	Input gain weight value **1**
8	Gain Calibration point **2**	**DWord**	Input gain weight value **2**
12	Gain Calibration point **3**	**DWord**	Input gain weight value **3**
16	Gain Calibration point **4**	**DWord**	Input gain weight value **4**
20	Gain Calibration point **5**	**DWord**	Input gain weight value **5**
24	Function operation	**DWord**	D18-D31 Reserved
			D18: Clear cumulative

			D17: Run once manually
			D16: Manual Fine Feed
			D15: Manual Coarse Feed
			D14: Lower nozzle complete
			D13: Tare and start filling
			D12: Select recipe
			D11: Clear alarm
			D10: Pause
			D9: Emergency stop
			D8: Slow stop
			D7: Start
			D6: Print feed paper
			D5: Print
			D4: Calibrate zero
			D3: Gross/Net weight switch
			D2: Clear Tare
			D1: Tare
			D0: Zero

Module 3: Parameter modification (read/write register)

0	Read out values	DWord	The master station requests the data returned by the instrument, the value obtained according to the "address requested to read"
4	The write status	Word	Write the state of the data return 0: No error 1: Register address is illegal 2: parameter error
6	Read status	Word	Read the status of the data returned 0: No error 1: The register address is illegal 2: parameter error
0	Request to write the value modbus address	DWord	Modbus write operation address (note that no write is written when the address changes), this parameter modifies the range of MODBUS addresses supported by the interface module only to 0100-02119
4	Input data	DWord	Write this data to the "modbus address of the requested value" (note that it will only be written to the instrument if the value has changed)
8	The address of the requested read	DWord	Modbus read operation address (note that you cannot read two-byte addresses, write an odd-numbered address). This parameter modifies the range of MODBUS addresses supported by the interface module only to 0000-02119

11.7.1.2 I/O Module address of the simple version

PN Loop parameter list

Offset	Parameter name	Data type	Parameter Description
Read register (I address)			
0	Displayed weight	**DInt**	Weight currently displayed, integer
4	Weight status flag bit	**Word**	D13-D15 Reserved
			D12: Bipolar
			D11: Calculate weight using theoretical values, (prompt user when calculating weight using theoretical values)
			D10: **ADC** failure, (**ADC** initialization failure or sampling interruption longer than expected)
			D9: Currently displayed net weight, (distinguish which weight is currently displayed)

			D8: millivolt stable, (millivolt stable sign when calibrating)
			D7: loadcell negative overflow, lower than the loadcell voltage allowed range
			D6: loadcell positive overflow, beyond the allowable range of loadcell voltage
			D5: Weight negative overflow, weight less than "-(Max range +**9d**)"
			D4: Weight positive overflow, weight greater than "Max range +**9d**"
			D3: Overflow status, (abnormal weight or loadcell)
			D2: Displayed weight is negative,
			D1: zero, (weight in **the** range of 0+/- quarter **d)**
			D0: Stable
6	Error code **1**	**Word**	D13-D15 Reserved
			D12: Remote calibration when disabled
			D11: In hardware protection when calibration
			D10: The previous weight point is not calibrated
			D9: Beyond minimum resolution (less than 0.1uV per division)
			D8: Weight input exceeds the maximum range
			D7: The weight input cannot be zero
			D6: Weight calibration is less than zero or the previous calibration point
			D5: The loadcell negative overflow during weight calibration
			D4: The loadcell negative overflow during weight calibration
			D3: Weight calibration is unstable
			D2: Loadcell positive overflow when zero calibration
			D1: Loadcell negative overflow when zero calibration
			D0: zero calibration is unstable
8	Error code **2**	**Word**	**D15** Reserved
			D14: Forbid zero when running
			D13: The remote tare operation allow switch is not enabled during remote tare operation
			D12: The tare is not allowed in the net weight state
			D11: The weight is negative when taring
			D10: The loadcell positive overflow when taring
			D09: The loadcell negative overflow when taring
			D08: Unstable when taring
			D07: The net weight status does not allow zeroing
			D06: The remote zero switch is not enabled when remote zero
			D05: The loadcell positive overflow when zeroing
			D04: The loadcell negative overflow when zeroing
			D03: Unstable when zeroing
			D02: Zero out of range
			D01: Unstable when power-on zero
			D00: Power-on zero is out of range
10	Process status flag bit	**Word**	**D15**: Wait for the stop signal
			D14: Zero Zone**:1**
			D13: Lower Nozzle :**1**, Raise nozzle: **0**
			D12: Push the bucket
			D11: normal liquid filling completed (valid after waiting, zero after starting liquid filling again)
			D10: Alarm
			D9: Weigh OK
			D8: Waiting

			D7: Under Replenish
			D6: Under
			D5: Over
			D4: Fine Feed
			D3: Medium Feed
			D2: Coarse Feed
			D1: Before feeding
			D0: Run: 1, Stop: 0
12	Alarm	**Word**	**D15** Reserved
			D14: Write data return status, 0 write success; 1 write failed
			D13: When PN is communicating, the value of the communication heartbeat switches between 0 and 1 at a frequency of 1 Hz.
			D12: Batches completes alarm
			D11: Not allowed to start when Start
			D10: Material level setting is not reasonable
			D9: Decrement protection
			D8: material leakage, when the coarse feeding flow is lower than the lower limit of coarse feeding flow, the instrument has the default material leakage, the instrument output buzzer alarm, the main interface prompts the material leakage, and stops
			D7: Over/under Pause
			D6: Over
			D5: Tare detection error
			D4: Bucket bump
			D3: OFL when starting
			D2: Lower nozzle/Raise nozzle function not defined, use step raise nozzle function
			D1: There is an undefined IO in the IO module that must be defined
			D0: Formula setting unreasonable alarm
14	Read out value	**DWord**	The master station requests the data returned by the instrument, the value obtained according to the "address requested to read"
Write register (Q address)			
0	Function operation	**DWord**	D18-D31 Reserved
			D18: Clear cumulative
			D17: Run once manually
			D16: Manual fine feed
			D15: Manual coarse feed
			D14: Lower Nozzle complete
			D13: Taring and liquid filling begins
			D12: Select recipe
			D11: Clear alarm
			D10: Pause
			D9: Emergency stop
			D8: Slow stop
			D7: Start
			D6: Print feed paper
			D5: Print
			D4: Calibrate zero
			D3: Gross/net weight switch
			D2: Clear tare
			D1: Tare
			D0: Zero
4	Request to write the value **modbus**	**DWord**	**Modbus** write operation address (note that not written when the address changes), this parameter modifies the

	address		range of MODBUS addresses supported by the interface module only to **0100-02119**
8	Input data	**DWord**	Write this data to the "**modbus** address of the requested value" (note that it will only be written to the instrument if the value has changed)
12	The address of the requested read	**DWord**	**Modbus** read operation address (note that you cannot read two-word addresses, write an odd-numbered address). This parameter modifies the range of MODBUS addresses supported by the interface module only **to 0000-02119**

11.7.1.3 I/O Module address of the simple2 version

PN Loop parameter list

Offset	Parameter name	Data type	Parameter Description
Weight and status indication ,Read register (I address)			
0	Displayed weight	**Float**	The currently displayed weight, floating-point type
4	Real-time weight	**Float**	The weight of the subtraction method's operation, floating-point type
8	Weight status flag bit	**Word**	**D15:** Communication heartbeat
			D13-D14 Reserved
			D12: Bipolar
			D11: Calculate weight using theoretical values, (prompt user when calculating weight using theoretical values)
			D10: **ADC** failure, (**ADC** initialization failure or sampling interruption longer than expected)
			D9: Currently displayed net weight, (distinguish which weight is currently displayed)
			D8: millivolt stable, (millivolt stable sign when calibrating)
			D7: loadcell negative overflow, lower than the loadcell voltage allowed range
			D6: loadcell positive overflow, beyond the allowable range of loadcell voltage
			D5: Weight negative overflow, weight less than "-(Max range +**9d**)"
			D4: Weight positive overflow, weight greater than "Max range +**9d**"
			D3: Overflow status, (abnormal weight or loadcell)
			D2: Displayed weight is negative,
			D1: zero, (weight in **the** range of 0+/- quarter **d)**
			D0: Stable
10	Error code **1**	**Word**	D13-D15 Reserved
			D12: Remote calibration when disabled
			D11: In hardware protection when calibration
			D10: The previous weight point is not calibrated
			D9: Beyond minimum resolution (less than 0.1uV per division)
			D8: Weight input exceeds the maximum range
			D7: The weight input cannot be zero
			D6: Weight calibration is less than zero or the previous calibration point
			D5: The loadcell positive overflow during weight calibration
			D4: The loadcell negative overflow during weight calibration
			D3: Weight calibration is unstable
			D2: Loadcell positive overflow when zero calibration
			D1: Loadcell negative overflow when zero calibration

			D0: zero calibration is unstable
12	Error code **2**	**Word**	**D15** Reserved
			D14: Forbid zero when running
			D13: The remote tare operation allow switch is not enabled during remote tare operation
			D12: The tare is not allowed in the net weight state
			D11: The weight is negative when taring
			D10: The loadcell positive overflow when taring
			D09: The loadcell negative overflow when taring
			D08: Unstable when taring
			D07: The net weight status does not allow zeroing
			D06: The remote zero switch is not enabled when remote zero
			D05: The loadcell positive overflow when zeroing
			D04: The loadcell negative overflow when zeroing
			D03: Unstable when zeroing
			D02: Zero out of range
			D01: Unstable when power-on zero
			D00: Power-on zero is out of range
14	Process status flag bit **1**		**D10~D15** Reserved
			D9：IO Test status
			D8:Printing in progress (valid when the instrument performs the printing operation)
			D6-D7:Reserved
			D5:**1**：Pause
			D4:**1**：Supply materials
			D3:**1**：Supply materials
			D2:**1**：Shortage of materials
			D1: Discharge position
			D0:Feeding position
16	Process status flag bit **2**	**Word**	**D15**: Wait for the stop signal
			D14: Zero Zone**:1**
			D13: Lower Nozzle :**1**, Raise nozzle: **0**
			D12: Push the bucket
			D11: normal liquid filling completed (valid after waiting, zero after starting liquid filling again)
			D10: Alarm
			D9: Weigh OK
			D8: Waiting
			D7: Under Replenish
			D6: Under
			D5: Over
			D4: Fine Feed
			D3: Medium Feed
			D2: Coarse Feed
			D1: Before feeding
			D0: Run: 1, Stop: 0
20	Process Alarm	**Word**	**D13-D15** Reserved
			D12: Batches completes alarm
			D11: Filling is not allowed (by subtraction method, the current weight is below the lower limit of the material level and it is in the feeding state).
			D10: Material level setting is not reasonable
			D9: Decrement protection
			D8: material leakage, when the coarse feeding flow is lower than the lower limit of coarse feeding flow, the instrument has the default material leakage, the instrument

			output buzzer alarm, the main interface prompts the material leakage, and stops
			D7: Over/under Pause
			D6: Over
			D5: Tare detection error
			D4: Bucket bump
			D3: OFL when starting
			D2: Lower nozzle/Raise nozzle function not defined, use step raise nozzle function
			D1: There is an undefined IO in the IO module that must be defined
			D0: Formula setting unreasonable alarm
22	Target value	**Float**	Range: 0~ Max range; The measured value per buckt during the cumulative process.
26	Target Value	**Float**	Range: 0~ Max range; In the process of measurement, if the weighing value≥ the target value – Coarse Reserve, then close Coarse Feeding
30	Coarse Reserve	**Float**	Range: 0~ maximum range; If the output IO is defined, in the measurement process, if the weighing value≥ the target value – Medium Reserve, then close Medium Feeding
34	Medium Reserve	**Float**	Range: 0~ Max range; In the measurement process, if the weighing value ≥ the target value – Free Fall, then close fine Feeding
38	Free Fall	**Float**	Instrument when stopping liquid filling, if feeding, stop feeding when this level is reached. (Note: when the scale structure is multi-head reduction, the parameter can be set)
42	Upper limit Material level	**Float**	When instrument stopping filling, if the material weight in the storage hopper is less than this lower limit, the feed output is valid(this lower limit must be greater than the filling target value, that means it must supply material when it is insufficient to fill the next bucket). (Note: when the scale body structure is multi-head reduction, the parameter can be set)
46	Waiting weight	**Float**	The weight of previous scale
50	Read out value	**DWord**	The master station requests the data returned by the instrument, the value obtained according to the "address requested to read"
Write register (Q address)			
0	Function operation	**DWord**	D18-D31 Reserved
			D18: Clear cumulative
			D17: Run once manually
			D16: Manual fine feed
			D15: Manual coarse feed
			D14: Lower Nozzle complete
			D13: Taring and liquid filling begins
			D12: Select recipe
			D11: Clear alarm
			D10: Pause
			D9: Emergency stop
			D8: Slow stop
			D7: Start
			D6: Print feed paper
			D5: Print
			D4: Calibrate zero
			D3: Gross/net weight switch

			D2: Clear tare
			D1: Tare
			D0: Zero
4	Target value	**Float**	Range: 0~ Max range; The measured value per buckt during the cumulative process.
8	Target Value	**Float**	Range: 0~ Max range; In the process of measurement, if the weighing value≥ the target value – Coarse Reserve, then close Coarse Feeding
12	Coarse Reserve	**Float**	Range: 0~ maximum range; If the output IO is defined, in the measurement process, if the weighing value≥ the target value – Medium Reserve, then close Medium Feeding
16	Medium Reserve	**Float**	Range: 0~ Max range; In the measurement process, if the weighing value ≥ the target value – Free Fall, then close fine Feeding
20	Free Fall	**Float**	Instrument when stopping liquid filling, if feeding, stop feeding when this level is reached. (Note: when the scale structure is multi-head reduction, the parameter can be set)
24	Upper limit Material level	**Float**	When instrument stopping filling, if the material weight in the storage hopper is less than this lower limit, the feed output is valid(this lower limit must be greater than the filling target value, that means it must supply material when it is insufficient to fill the next bucket). (Note: when the scale body structure is multi-head reduction, the parameter can be set)
28	Gain calibration	**Float**	Write the weight value to calibrate the calibration weight point 1
32	Request to write the value modbus address	DWord	**Modbus** write operation address (note that not written when the address changes), this parameter modifies the range of MODBUS addresses supported by the interface module only to **0100-02119**
36	Input data	**DWord**	Write this data to the "**modbus** address of the requested value" (note that it will only be written to the instrument if the value has changed)
40	The address of the requested read	**DWord**	**Modbus** read operation address (note that you cannot read two-word addresses, write an odd-numbered address). This parameter modifies the range of MODBUS addresses supported by the interface module only **to 0000-02119**

Acyclic parameter

Parameter names	Default	Parameter Description
Power on zero range	0	Range: 0~99(* full Scale %)
Zero tracking range	1	0-99d
Stable range	1	0-99d
Zero range	20%	Range: 1~99(* full scale %)
Digital filter parameters	4	0-9
Steady filtering	0	0-99
Units	kg	g,kg,t,lb
Decimal point	0	Range: 0; 0.0; 0.00; 0.000; 0.0000
Minimum division	d=1	Instrument indicates the minimum change in value. Range: 1,2,5,10,20,50,100,200,500

Maximum range	10000	The maximum reading of the instrument is generally taken as the range of the sensor. Range: 0-999999 When setting an over-range (" data out of range ") prompt message, to prevent damage to the sensor due to overvoltage during weighing.

11.7.2 Device Description file GSD

The device description file and connection method of GMC-X1LF can be downloaded from the website of Shenzhen General Measure Technology Co., LTD. (www.gmweighing.com).

11.8 EtherNet-IP Communication

Instrument IP address in the communication setting - network port communication - the local IP address item set and view, after setting to re-power on to take effect. MAC address in the system maintenance - System information -MAC address item to view.

11.8.1 I/O Status

GMC-X1LF provides multi-byte **IO** through which the master station can read and control the status of the weigh display.

Module 1: Read the register area

Offset	Parameter name	Data type	Parameter Description
Weight and status bits, read register			
0	Displyed weight	**DInt**	Weight currently displayed, integer
2	Displayed running weight	**DInt**	Decrement method weight
4	Weight status flag bit	**Word**	D13-D15 Reserved
			D12: Bipolar, (flag bits are valid when bipolar is selected)
			D11: Calculate the weight using the theoretical value, (prompt the user when calculating the weight using the theoretical value)
			D10: **ADC** failure, (**ADC** initialization failure or sampling interruption longer than expected)
			D9: Currently displayed net weight, (distinguish which weight is currently displayed)
			D8: millivolt stable, (when calibration millivolt stable sign)
			D7: loadcell negative overflow, lower than the loadcell voltage allowed range
			D6: loadcell positive overflow, beyond the allowable range of loadcell voltage
			D5: Weight negative overflow, weight less than "-(Max range +**9d**)"
			D4: Weight positive overflow, weight greater than "Max range +**9d**"
			D3: Overflow status, (abnormal weight or loadcell)
			D2: Displayed weight negative sign, (means weight is negative)

			D1: zero, (weight in **the** range of 0+/- quarter **d)**
			D0: Stable
5	Error code **1**	**Word**	D13-D15 Reserved
			D12: Remote calibration when disabled
			D11: In hardware protection at calibration
			D10: The previous weight point is not calibrated
			D09: Beyond minimum resolution (less than 0.1uV **per division)**
			D08: Weight input exceeds maximum range
			D07: The weight input cannot be zero
			D06: Weight calibration is less than zero or the previous calibration point
			D05: The loadcell is overflowing during weight calibration
			D04: Loadcell negative overflow during weight calibration
			D03: Weight calibration is unstable
			D02: Loadcell overflow during zero calibration
			D01: Loadcell negative overflow during zero calibration
			D00: zero calibration is unstable
6	Error code **2**	**Word**	D14-D15 Reserved
			D13: Remote tare operation allow switch is not turned on during remote tare operation
			D12: Not allow taring in the net weight state
			D11: The weight is negative overflow when the taring
			D10: The loadcell is positive overflow when taring
			D09: The loadcell negative overflow when taring
			D08: Unstable when taring
			D07: Does not allow zeroing in net weight status
			D06: The remote zero switch is not enabled during remote zero
			D05: The loadcell positive overflow when zeroing
			D04: The loadcell negative overflow when zeroing
			D03: Unstable when zeroing
			D02: zero out of range
			D01: power-on zero unstable
			D00: power-on zero out of range
7	Process status flag bit	**Word**	D10-D15 Reserved
			D9: indicates the I/O test status
			D8: Printing, (valid when the instrument is performing a printing operation)
			D6-D7: reserved
			D5:1: Pause
			D4:1: Pause
			D3:1: Supply Material
			D2:1: Lack Material
			D1: lower level
			D0: Upper level
8		**Word**	**D15**: Wait for the stop signal

	Process status flag bit 2		**D14**: Zone Zero: 1
			D13: Lower Nozzle: 1, lift gun: 0
			D12: Push bucket
			D11: Normal liquid filling completed (valid after waiting, zero after starting filling again)
			D10: Alarm
			D9: Weigh OK
			D8: Waiting
			D7: Under Replenish
			D6: Under
			D5: Over
			D4: Fine Feed
			D3: Medium Feed
			D2: Coarse Feed
			D1: Before Feeding
			D0: Run **:1,** Stop **:0**
9	Status Tips	**Word**	**0-** No action 1- Raise bucket 2- Wait for the start signal 3- Wait for the Lower level 4- Delay 5- Coarse Feed 6- Medium Feed 7- Fine Feed 8- Free Fall delay 9- Drop correction 10- Over/Under 11- Under replenish 12- Over/under Pause 13- Raise nozzle 14- Waiting 15- Weigh OK 16- Pushing bucket 17- Waiting to stop 18- Pause 19- Batches complete
10	Process alarm	**DWord**	D12-D15 Reserved
			D12: Batch complete alarm
			D11: Do not allow filling (reduction method, the current weight **is** below the lower limit of the material level**,** in the feeding state)
			D10: The material level is not set properly
			D9: Decrement protection
			D8: material leakage, when the coarse feeding flow is lower than the lower limit of rapid feeding flow, the instrument has the default material leakage, the instrument output buzzer alarm, the main interface prompts the material leakage, and stops
			D7: Over/under Pause
			D6: Over/Under
			D5: Tare detection error
			D4: Bump Bucket
			D3: OFL when starting

			D2: Lower nozzle/raise nozzle function not defined, use step raise nozzle function
			D1: There is an undefined IO in the IO module that must be defined
			D0: Formula setting unreasonable alarm
12	Gross Weight	**DInt**	Gross weight value (signed integer)
14	Net weight	**DInt**	Net weight value (signed integer)
16	Tare	**DInt**	Tare value (signed integer)
18	Current weight	**Float**	Weight currently displayed, floating point type
20	Gross weight	**Float**	Gross weight value, floating point type
22	Net weight	**Float**	Net weight value, floating point type
24	Tare	**Float**	Tare value, floating point type
26	Code in **AD** after filtering	**DWord**	Inside code of the **ADC** after filtering,
28	loadcell voltage value data	**DWord**	Signed numbers, integers, four decimal points
30	Relative zero voltage value data	**DWord**	Signed numbers, integers, four decimal points
32	System accumulates high **6** digit	**DWord**	Unsigned number, integer
34	System accumulates low **9** digit	**DWord**	Unsigned number, integer
36	System ACUM Times	**DWord**	Unsigned number, integer
38	Formula weight high **6** points	**DWord**	Unsigned number, integer
40	Formula weight low **9** points	**DWord**	Unsigned number, integer
42	Recipe ACUM Times	**DWord**	Unsigned number, integer
44	Waiting weight	**DWord**	Unsigned number, integer
46	Input status area	**Word**	D5-D15 Reserved
			D4: Input **5** status (extended input **2**)
			D3: Input **4** status (extended input **1**)
			D2: Input **3** status
			D1: Input **2** status
			D0: Input **1** status
47	Output status area	**Word**	D9-D15 Reserved
			D8: Output **9** status (extended output **4**)
			D7: Output **8** status (extended output **3**)
			D6: Output **7** status (extended output **2**)
			D5: Output **6** states (extended output **1**)
			D4: Output **5** status
			D3: Output **4** status
			D2: Output **3** status
			D1: Output **2** status
			D0: Output **1** status

48	Communication heartbeat	**DWord**	After the communication indicator is set to the network port, the communication indicator blinks at **1HZ**. When the **EIP** communicates, the value of the communication heartbeat switches between **0** and **1** at a frequency of **1 Hz**.
Calibrate and read the register			
50	Automatic zero acquisition	**DWord**	Current loadcell voltage
52	Gain calibration point **1**	**DWord**	Relative voltage value **1** (loadcell input - zero point voltage)
54	Gain calibration point **2**	**DWord**	Relative voltage value **2** (loadcell input - calibration point **1** voltage)
56	Gain calibration point **3**	**DWord**	Relative voltage value **3** (loacell input - calibration point **2** voltage)
58	Gain calibration point **4**	**DWord**	Relative voltage value **4** (loadcel input - calibration point **3** voltage)
60	Gain calibration point **5**	**DWord**	Relative voltage value **5** (loadcell input - calibration point **4** voltage)
Parameter modification, read register			
62	Read value	**DWord**	The master station requests the data returned by the instrument, the value obtained according to the "address requested to read"
64	Write status	**Word**	Write the status of the data return 0: No error 1: the register address is invalid 2: the parameter is incorrect
65	Read status	**Word**	Read the status of the data returned 0: No error 1: The register address is illegal 2: parameter error

Module 2: Write register area

Calibration area			
0	Automatically Obtain zero	**DWord**	Current loadcell voltage
2	Gain calibration point **1**	**DWord**	Input gain weight value **1**
4	Gain calibration point **2**	**DWord**	Input gain weight value **2**
6	Gain calibration point **3**	**DWord**	Input gain weight value **3**
8	Gain calibration point **4**	**DWord**	Input gain weight value **4**
10	Gain calibration point **5**	**DWord**	Input gain weight value **5**
Function operation			
12	Functional operation	**DWord**	D18-D31 Reserved
			D18: Clear ACUM
			D17: Run once manually
			D16: Manual Fine feed
			D15: Manual Coarse feed
			D14: Lower nozzle completed
			D13: Taring and filling begins
			D12: Select recipe
			D11: Clear alarm
			D10: Pause
			D9: Emergency stop
			D8: Slow stop
			D7: Start

			D3: Gross/net weight switch
			D2: Clear Tare
			D1: Remove the tare
			D0: Zero
Parameter modification			
14	Request to write the value **modbus** address	**DWord**	**Modbus** write operation address (note that the MODBUS write operation will not be written when the address changes.) This parameter modifies the modbus address range supported by the interface module only from **0100 to 02119**
16	Input data	**DWord**	Write this data to the "**modbus** address of the requested value" (note that it will only be written to the instrument if the value has changed)
17	The address of the requested read	**DWord**	**Modbus** read operation address (note:cannot read two-word addresses, write an odd-numbered address). This parameter modifies the range of MODBUS addresses supported by the interface module only from **0100 to 02119**

11.8.2 Device description file EDS

EDS and connection methods of GMC-X1LF can be downloaded from the website of Shenzhen General Measure Technology Co., LTD. (www.gmweighing.com).

11.9 EtherCAT Communication

GMC-X1LF has two bus connection ports: NET1 and NET2. Any computer with a network interface card and embedded devices with Ethernet control can be used as a master station for EtherCAT, such as devices such as Huichuan PLC. The instrument can also be connected via Twincat software on a PC computer, in any case within the same local area network as the instrument. The following parameter table can be operated if the connection is successful.

11.9.1 Bus Settings

When the order is equipped with **EtherCAT** extension, enter the menu and press the left button to display the bus setting "EtherCAT", you can set the following parameters

EtherCAT	Initial value	Instructions
Site alias	**00001**	Range: **0-65535**
Write Switch	Disable	Range: Disable/Enable; Acyclic parameters can be written only after they are turned on.

11.9.2 Cyclic parameter address

GMC-X1LF EtherCAT communication provides multi-byte **IO,** output in two modules**,** through which the master station can read and control the status of the weigh indicator.

Offset	Parameter name	Data type	Parameter Description
Weight and status bits, read register			
0	Displayed weight	**Float**	Weight currently displayed, floating point type
4	Real-time weight	**Float**	The weight of the subtractive method run, floating point type
8		**Word**	**D15:** Communication heartbeat

	Weight status flag bit		D13-D14 reserved
			D12: Bipolar
			D11: Calculate weight using theoretical values, (prompt user when calculating weight using theoretical values)
			D10: **ADC** failure, (**ADC** initialization failure or sampling interruption longer than expected)
			D9: Currently displayed net weight, (distinguish which weight is currently displayed)
			D8: millivolt stable, (when calibration millivolt stable sign)
			D7: loadcell negative overflow, lower than the loadcell voltage allowed range
			D6: loadcell positive overflow, beyond the loadcell voltage allowable range
			D5: Weight negative overflow, weight less than "-(Max range +**9d**)"
			D4: Weight positive overflow, weight greater than "Max range +**9d**"
			D3: Overflow condition, (abnormal weight or loadcell)
			D2:Displayed weight negative sign, (Displayed weight negative)
			D1:Zero, (weight in the range of 0+/- quarter **d)**
10	Error code **1**	**Word**	D13-D15 Reserved
			D12: Remote calibration when disabled
			D11: In hardware protection during calibration
			D10: The previous weight point is not calibrated
			D9: Beyond minimum resolution (less than 0.1uV **per division)**
			D8: Weight input exceeds the maximum range
			D7: The weight input cannot be zero
			D6: Weight calibration is less than zero or the previous calibration point
			D5: Loadcell positive overflowing during weight calibration
			D4: Loadcell negative overflow during weight calibration
			D3: Weight calibration is unstable
			D2: Loadcell positively overflows during zero calibration
			D1: loadcell negatively overflow during zero calibration
			D0: zero calibration is unstable
12	Error code **2**	**Word**	**D15** Reserved
			D14: Run Forbid zero
			D13: The remote tare operation allow switch is not enabled during remote tare operation
			D12: The tare operation is not allowed in the net weight state
			D11: The weight negative overflow when taring
			D10: Loadcell positive overflow when taring
			D09: Loadcell negative overflow when taring
			D08: Unstable when taring
			D07: The net weight status does not allow zeroing
			D06: The remote zero switch is not enabled during remote zero
			D05: The loadcell positively overflow when zeroing
			D04: The loadcell neagatively overflow when zeroing

			D03: Unstable when zeroing
			D02: Zero out of range
			D01: Power-on zero is unstable
14	Process status flag bit 1	**Word**	D10-D15 Reserved
			D9: **IO** test status
			D8: Printing, (valid when the instrument is performing a printing operation)
			D6-D7: reserved
			D5:1: Pause
			D4:1: Slow Stop
			D3:1: Supply material
			D2:1: Lack material
			D1: Lower level
			D0: Upper level
16	Flow status flag bit **2**	**Word**	**D15**: Wait for the stop signal
			D14: Zero Zone**:1**
			D13: Lower nozzle:**1**, Raise nozzle: **0**
			D12: Push bucket
			D11: normal liquid filling completed (valid after setting value, zeroing after starting filling again)
			D10: alarm
			D9: Weigh OK
			D8: Waiting
			D7: Under Replenish
			D6: Under
			D5: Over
			D4: Fine Feed
			D3: Medium Feed
			D2: Coarse Feed
			D1: Before feeding
			D0: Run: 1, Stop: 0
18	Status Tips	**Word**	**0-** No action 1- load bucket 2- Wait for the start signal 3- Wait for the low level 4- Delay 5- Coarse Feed 6- Medium Feed 7- Fine Feed 8- Free Fall delay 9- Free Fall correction 10- Over/under 11- Under Replenish 12- Over/under pause 13- Raise nozzle 14- Waiting 15- Weigh OK 16- Pushing bucket 17- Waiting to stop 18- Pause 19- Batches completed 20-Wait for stable
20	Process alarm	**Word**	D13-D15 Reserved
			D12: Batches complete alarm

			D11: Do not allow filling (reduction method, the current weight **is** below the lower limit of the material level**,** in the feeding state)
			D10: The material level is not set properly
			D9: Decrement protection
			D8: material leakage, when the coarse feeding flow is lower than the lower limit of coarse feeding flow, the instrument has the default material leakage, the instrument output buzzer alarm, the main interface prompts the material leakage, and stops
			D7: Over pause
			D6: Over/Under
			D5: Tare detection error
			D4: Bucket bump
			D3: OFL when starting
			D2: Lower nozzle/Raise nozzle function not defined, use step raise nozzle function
			D1: There is an undefined IO in the IO Module that must be defined
			D0: Formula setting unreasonable alarm
22	Target Value	**Float**	Range: 0~ Max range; The measured value per buckt during the cumulative process.
26	Coarse Reserve	**Float**	Range: 0~ Max range; In the process of measurement, if the weighing value≥ the target value – Coarse Reserve, then close Coarse Feeding
30	Medium Reserve	**Float**	Range: 0~ maximum range; If the output IO is defined, in the measurement process, if the weighing value≥ the target value – Medium Reserve, then close Medium Feeding
34	Free Fall	**Float**	Range: 0~ Max range; In the measurement process, if the weighing value ≥ the target value – Free Fall, then close fine Feeding
38	Upper limit Material level	**Float**	Instrument when stopping liquid filling, if feeding, stop feeding when this level is reached. (Note: when the scale structure is multi-head reduction, the parameter can be set)
42	Lower limit of material level	**Float**	When instrument stopping filling, if the material weight in the storage hopper is less than this lower limit, the feed output is valid(this lower limit must be greater than the filling target value, that means it must supply material when it is insufficient to fill the next bucket). (Note: when the scale body structure is multi-head reduction, the parameter can be set)
46	Read out value	**DWord**	The master station requests the data returned by the instrument, the value obtained according to the "address requested to read"
Write register (Q address)			
0	Function operation	**DWord**	D18-D31 Reserve
			D18: Clear cumulative
			D17: Run once manually
			D16: Manual Fine Feed
			D15: Manual Coarse Feed
			D14: Lower Nozzle Complete
			D13: Taring and Start Liquid filling
			D12: Select recipe
			D11: Clear alarm
			D10: Pause

			D9: Emergency stop
			D8: Slow stop
			D7: Start
			D6: Print Feed paper
			D5: Print
			D4: Zero Calibration
			D3: Gross/net weight switch
4	Target value	**Float**	Range: 0~ Max range; The measured value per bucket during the cumulative process.
8	Coarse Reserv e	**Float**	Range: 0~ Max range; In the process of measurement, if the weighing value ≥ the target value – coarse reserve, then close coarse feeding
12	Medium Reserve	**Float**	Range: 0~ Max range; If the output is defined, in the measurement process, if the weighing value ≥ the target value – medium reserve, then close medium feeding
16	Free Fall	**Float**	Range: 0~ Max range; In the measurement process, if the weighing value≥ the target value – Free Fall, then close fine feeding
20	Upper limit of material level	**Float**	When the instrument stops filling, if the feed is performed, the feed stops when this level is reached. (Note: when the scale structure is multi-head reduction, the parameter can be set)
24	Lower limit of material level	**Float**	When the instrument stops filling liquid, if the material weight in the storage hopper is less than this lower limit, the feed output is effective (this lower limit must be greater than the filling target value, that means it must be supply material when it is insufficient to fill the next bucket). (Note: when the scale structure is multi-head reduction, the parameter can be set)
28	Gain calibration	**Float**	Write the weight value to the calibration weight calibration point **1**
32	Request the written value **modbus** address	**DWord**	**Modbus** write operation address (note that no write is written when the address changes), this parameter modifies the range of MODBUS addresses supported by the interface module only to **0100-02119**
36	Input data	**DWord**	Write this data to the "**modbus** address of the requested value" (note that it will only be written to the instrument if the value has changed)
40	The address of the requested read	**DWord**	**Modbus** read operation address (note that cannot read two-word addresses, write an odd-numbered address). The MODBUS address range supported by the interface module is limited to **0000-02119**

11.9.3 Acyclic parameter

The parameters refer to section 11.7.1.3 **PN Acyclic parameters list**.

11.9.4 Device description file ESI

The Equipment description file of **GMC-X1LF** and the detailed steps for using **PLC** and **Twincat** are available for **download** from the website of Shenzhen General Measure Technology Co., LTD. **(**(www.gmweighing.com).

Chapter 12 Function description

12.1 Supply Material control

Due to the different application conditions, the level device of the filling scale storage tank can be installed in three cases: double level (upper and lower level), single level (lower level) and no level.

This instrument distinguishes three situations by the definition of the input of the upper and lower level of the IO module. The control methods of each situation are different, and the details are as follows:

1) **Double material level**, the upper and lower level are defined, that is, **I13, I14** are specified as the input definition, at this time the instrument has the feed control function. The control principle is: when the input of the upper and lower level is invalid, the feed output of the instrument is valid; When the feeding level input is valid, the feeding output is invalid. At the same time, before each feeding (Coarse, medium and fine feeding), the instrument will detect whether the feeding level is valid, if not, wait for this signal; Only when this signal is valid can the feeding process begin. During the feeding process, the instrument does not detect whether the lower level signal is valid.

2) **Single material level**, the lower level is defined, the upper level is not defined, that is, only **I14** is specified as the input definition, at this time the instrument will not perform feed control, just detect the lower level before feeding, if invalid, wait for this signal; Only the signal valid start filling process. During the feeding process, the instrument does not detect whether the lower level signal is valid.

3) **No level device**, the upper and lower level are not defined, at this time, the instrument does not control the feed, and does not detect whether the lower level is effective before feeding.

When the scale structure is set to multiple decrement: the filling scale storage tank does not need the level control, and the instrument detects the level through the upper and lower limits of the level in the product formula parameters. In the filling process, the material level is not detected and controlled; In the stop state, the instrument will detect the current weight of the storage hopper and the lower limit value of the material level, if the current weight is less than the lower limit value of the material level, will perform supply material until the upper limit value of the material level to stop the feeding. The reasonable lower limit value of the material level must be greater than the target value, otherwise the material in the storage hopper is less than one filling process, and the filling is not allowed to start at this time, and the corresponding alarm will be prompted. During the feeding process, the filling is not allowed to start.

12.2 Bucket bump protection

If the function of bucket bump protection is required, the "bucket bump protection switch" in the formula parameter is turned on first. The optional configuration is:

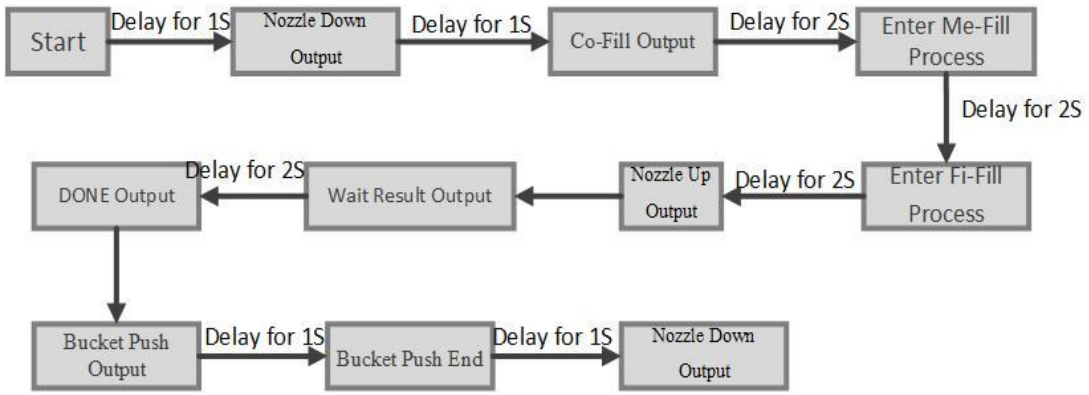
1） If the "Lower nozzle priority" is "lower nozzle first", the lower nozzle process: from the delay start before taring to the end signal be valid (the input defines the end signal of the **I12** Nozzle Down OK) or the end of the delay before taring (does not define the end signal of the **I12** Nozzle Down OK), the Bucket protection is detected during the lower nozzle time.

2） If the "lower nozzle priority" is "taring first", the lower nozzle process: starts after the delay before taring and ends after the lower nozzle end signal be valid (the input defines the **I12** Nozzle Down OK) or the delay before raise nozzle (does not define the **I12** Nozzle Down OK), and the Bucket bump protection is detected during the lower nozzle process.

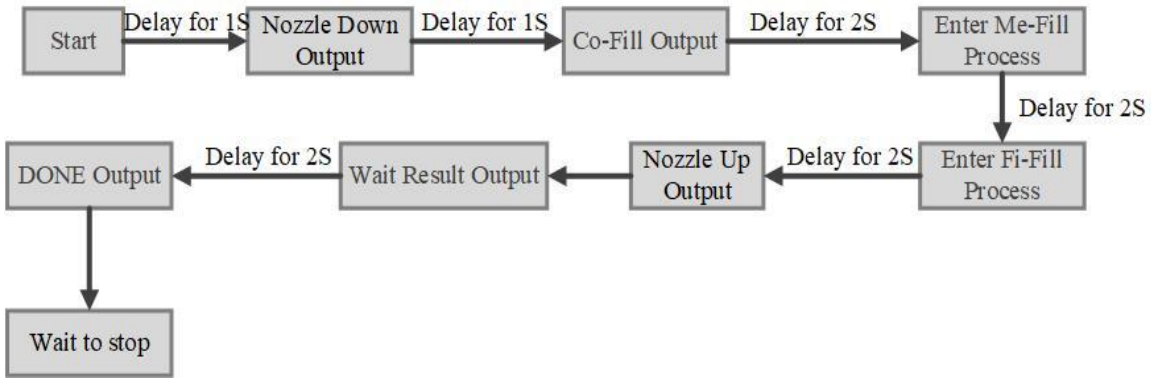
After the Bucket is stabilized on the weighing platform, if the current gross weight recorded by the instrument - the initial gross weight before lower nozzle > the drum bucket protection weight, it is considered that drum bucket during the lower nozzle process, and output the drum bucket alarm signal (the signal time is set by the drum bucket alarm time) and return to the stop state.

12.3 Simulation Operation

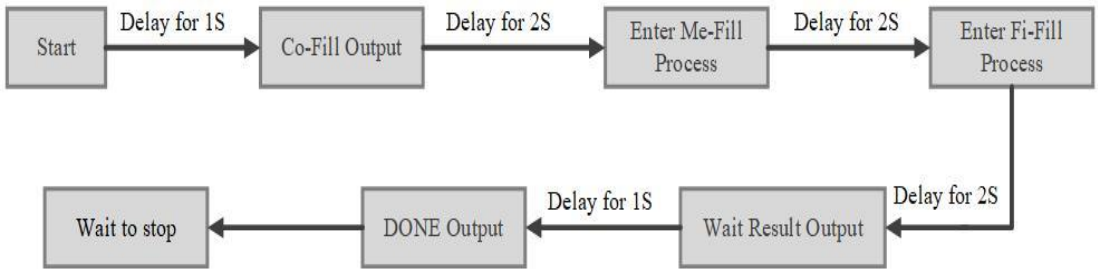
Single Increment



Multi-Increment



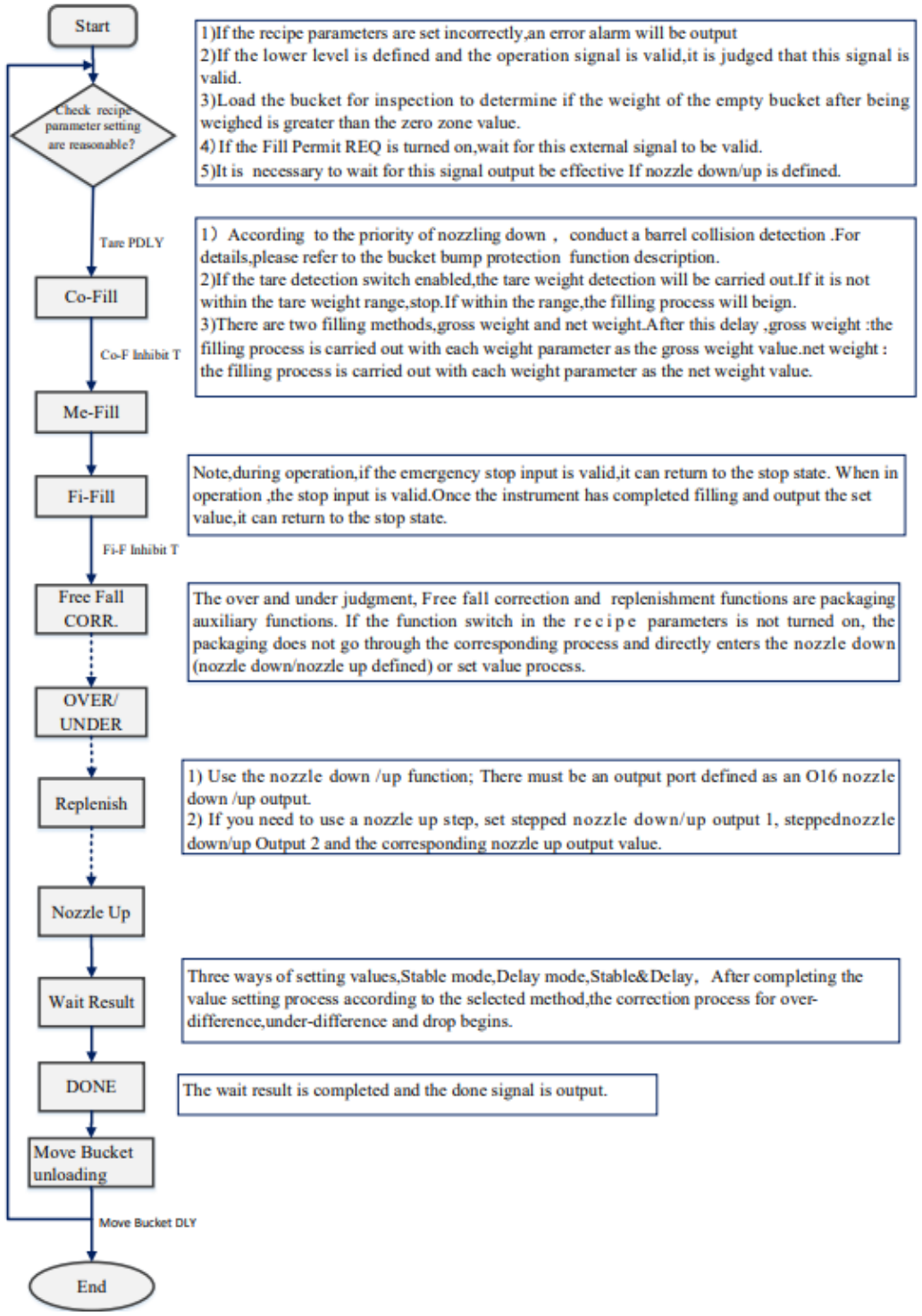
Multi-Decrement



Chapter 13 Working Process

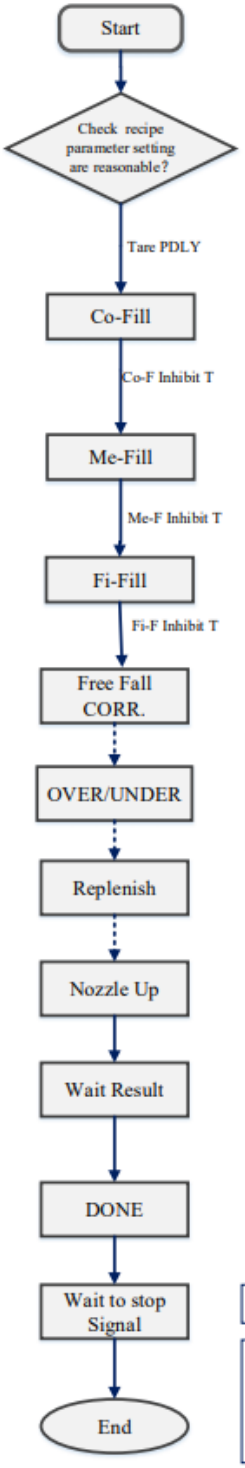
13.1 Single Increment

Liquid Filling process instruction:



13.2 Multi increment

Liquid Filling process instructions:



1)If the recipe parameters are set incorrectly,an error alarm will be output
2)If the lower level is defined and the operation signal is valid,it is judged that this signal is valid.
3)Load the bucket for inspection to determine if the weight of the empty bucket after being weighed is greater than the zero zone value.
4) If the Fill Permit REQ is turned on,wait for this external signal to be valid.
5)It is necessary to wait for this signal output be effective If nozzle down/up is defined.

1） According to the priority of nozzling down， conduct a barrel collision detection .For details,please refer to the bucket bump protection function description.
2)If the tare detection switch enabled,the tare weight detection will be carried out.If it is not within the tare weight range,stop.If within the range,the filling process will beign.
3)There are two filling methods,gross weight and net weight.After this delay ,gross weight :the filling process is carried out with each weight parameter as the gross weight value.net weight： the filling process is carried out with each weight parameter as the net weight value.

Note,during operation,if the emergency stop input is valid,it can return to the stop state. When in operation ,the stop input is valid.Once the instrument has completed filling and output the set value,it can return to the stop state.

The over and under judgment, Free fall correction and replenishment functions are packaging auxiliary functions. If the function switch in the recipe parameters is not turned on, the packaging does not go through the corresponding process and directly enters the nozzle down (nozzle down/nozzle up defined) or set value process.

1) Use the nozzle down /up function; There must be an output port defined as an O16 nozzle down /up output.
2) If you need to use a nozzle up step, set stepped nozzle down/up output 1, steppednozzle down/up Output 2 and the corresponding nozzle up output value.

Three ways of setting values,Stable mode,Delay mode,Stable&Delay， After completing the value setting process according to the selected method,the correction process for over-difference,under-difference and drop begins.

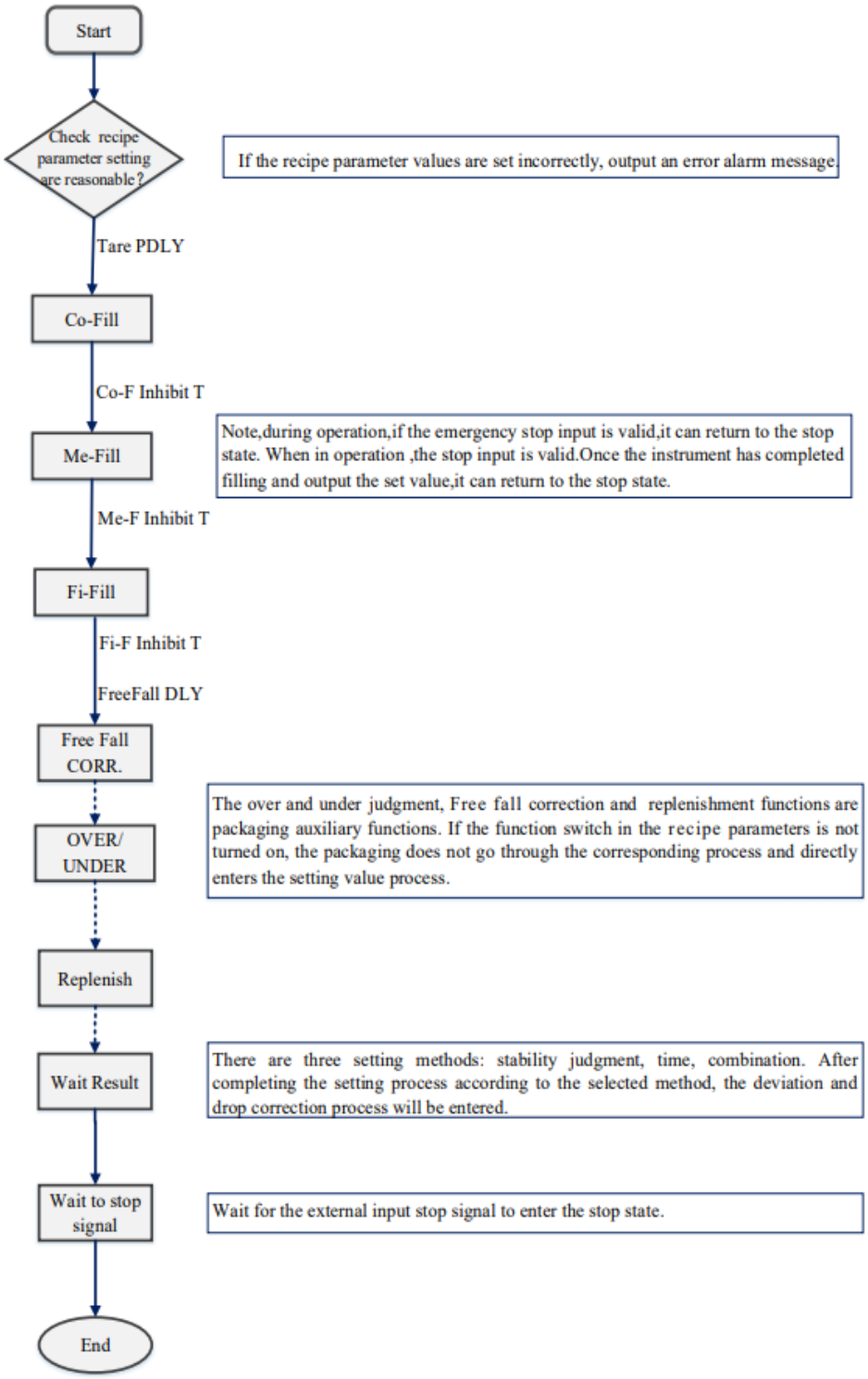
The wait result is completed and the done signal is output.

Wait for the external input stop signal to enter the stop state.

Note: During operation: If the "emergency stop" input is valid, it can return to the stop state. When in operation, the "slow stop" input is valid. Once the instrument has completed filling and output the set value, and the gross weight is less than or equal to the zero zone, it can return to the stop state.

13.3 **Multi decrement**

Liquid Filling process instructions:



Chapter 14 Product Dimensions