GENERAL MEASURE

杰 • 曼 • 科 • 技

# GMC-P7-F8

## Static weighing

# Instruction manual

110612070004
V01.00.02

| | |
|---|---|
|  **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** |

**Catalogue**

# Chapter 1 Overview

## **1.1** Functions and features

- All Chinese touch screen display interface, make the operation more intuitive and simple
- **14** input and output control **(5** in/**9** out), input and output port functions can be customized.
- IO test function, convenient debugging
- Time/Date function
- Secondary user permission Settings
- Three serial ports for external serial printers, computers, or second monitors
- Support a variety of communication Modbus, command mode, continuous mode, printing mode
- Support **Profinet/Ethernet/IP** bus function
- Support analog multi-point calibration function
- Different printer types can be selected by printing method.

## **1.2** Technical Specifications

### **1.2.1** General Specifications

Power source: **DC24V**
Power filter: included
Operating temperature: **-10 ~ 40℃**
Max humidity: **90%R.H**. No condensation
Power consumption: about **15W**
Physical dimensions: **233mm x 168mm x 63mm**
Product weight: **1542g**

### **1.2.2** Analog part

Loadcell power supply: **DC5V 125mA (MAX)**
Input impedance: **10MΩ**
Zero adjustment range: **0.002 ~ 15mV (when the loadcell is 3mV/V)**
Input sensitivity: **0.02uV/d**
Input range:**0.02**~**15**mV
Conversion mode: Sigma-Delta
**A/D** conversion speed: **50~960** times/second, 10 kinds of sampling speed optional
Non-linear: **0.01% F.S**
Increment drift: **10PPM/** ℃

### **1.2.3** Digital part

Display: 7 "inch touch screen

Negative display: "-"

Overload display: Chinese "Weight Out of Capacity/loadcell overflow negatively "

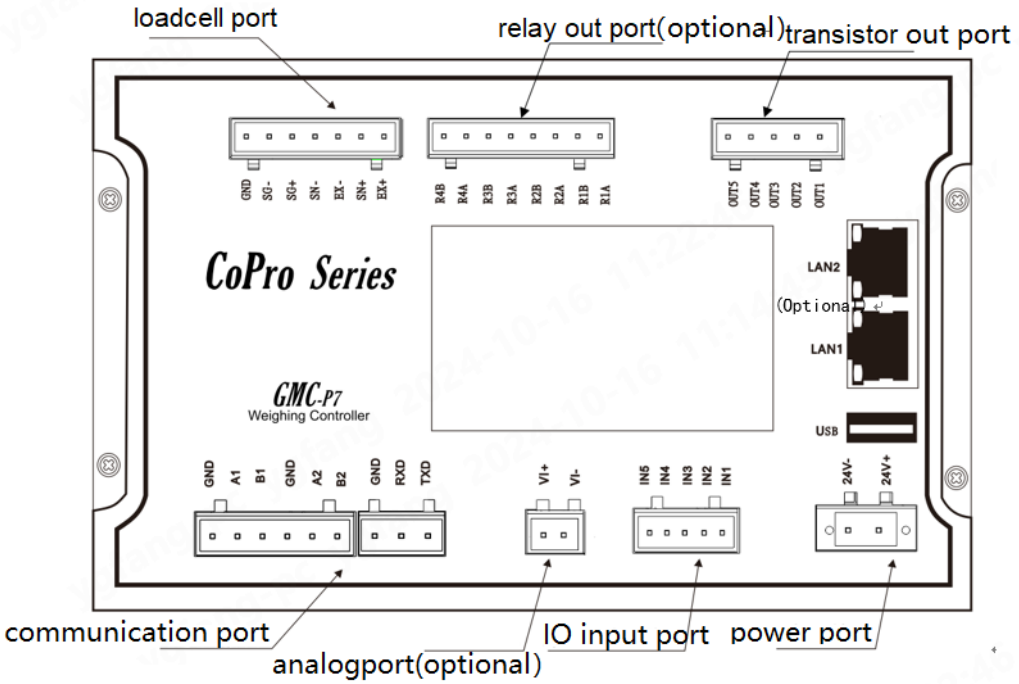
Decimal point: 5 optional

## **1.3** Front Panel description

**Static weighing interface:**


1) Which can view the cumulative value and total cumulative value, the current cumulative batch, the current recipe number and recipe name;
2) Click the shortcut button [history], which can enter the history interface to view the history record;
3) Which can click the shortcut button [recipe], just enter the history recipe parameter interface, set the current recipe number and recipe name and upper /lower limits, and can also switch and modify the recipe.

**1.4** Description of the rear panel



# Chapter 2 Installation and wiring

## **2.1** General Principles

**1)** Make holes in the appropriate position of the control cabinet (hole size **213 (±1) mm ×147 (±1) mm**)

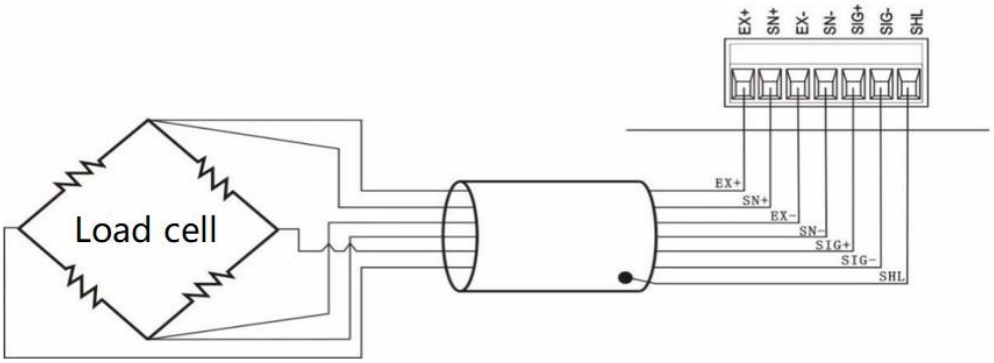
**2)** Load the instrument into the control cabinet.

**3)** Take out the side strip from the fitting that comes with the instrument, fix it on both sides of the instrument, and secure it with **M4*12** screws.

## **2.2** Loadcell Connection

**The GMC-P7(F8)** weighing controller 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-wire system | Power positive | Sensitive positive | Power negative | Sensitive negative | Positive signal | Negative signal | Shielded wire |




**Notes:**

Because the loadcell output signal is an analog signal that is more sensitive to electronic noise, the loadcell wiring should be shielded cables, and be laid separately from other cables, especially away from AC power;

**2**. Four-wire loadcell can be selected for occasions where the transmission distance is short and the temperature change is not large or the accuracy requirements are not high; However, for applications with long transmission distance or high accuracy requirements, six-wire loadcell should be selected;

**3**. For the application of multiple loadcells in parallel, it is necessary to ensure that the sensitivity of each loadcell (**mV/V**) is consistent

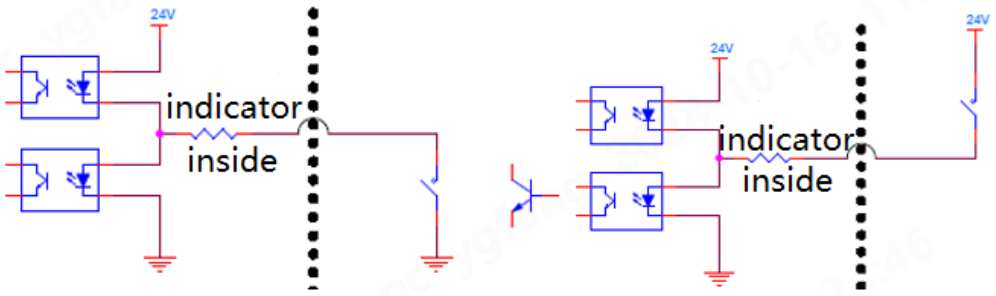
## **2.3** IO interface connection

**GMc-p7 (F8)** weighing controller includes **14** input and output control interface functions (**5** in and **9** out), which adopts photoelectric isolation mode and driven by internal

power supply. **5** input port **9** output (output port **1~5** transistor collector open output mode**,** can switch high and low levels, each drive current is **200mA,** full load current max to **3A**. Output **6~9** is the relay output).

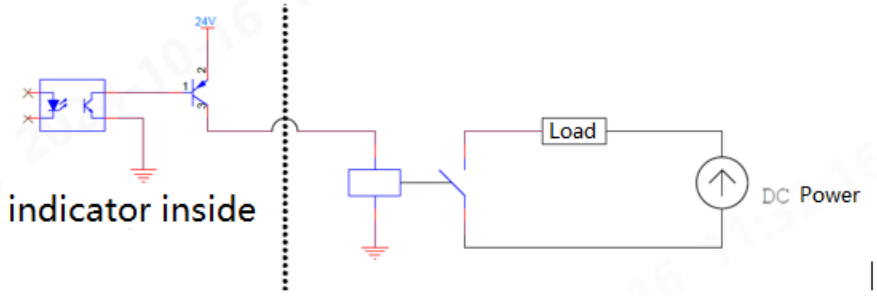
The factory default low level of the input and output interfaces is valid. Each input and output has no function by default, and the user can set the IO parameters.

Instrument input interface schematic diagram:

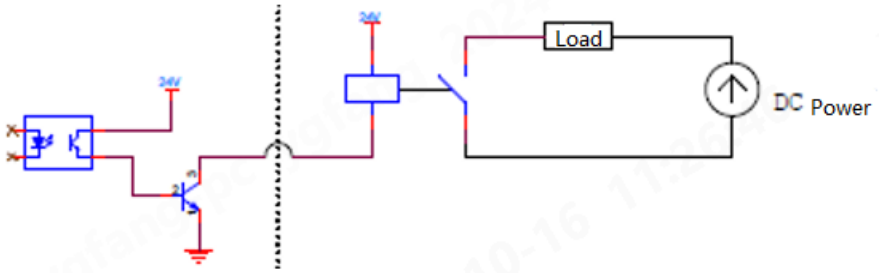



Low level mode　　High level mode

Instrument output interface schematic diagram:



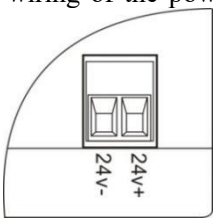

High level mode




Low level mode

## **2.4** Power Wiring

**GMc-p7 (F8)** Weighing controller enables **24V** power supply. The wiring of the power terminal is shown below:



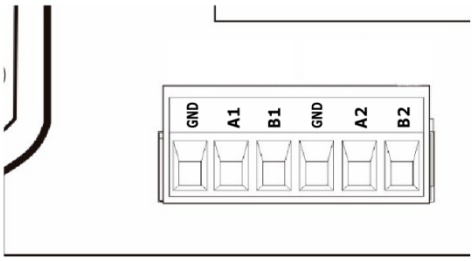

**Note: This product uses 24V DC power supply,**

**Using 220V AC power will permanently damage the instrument.**

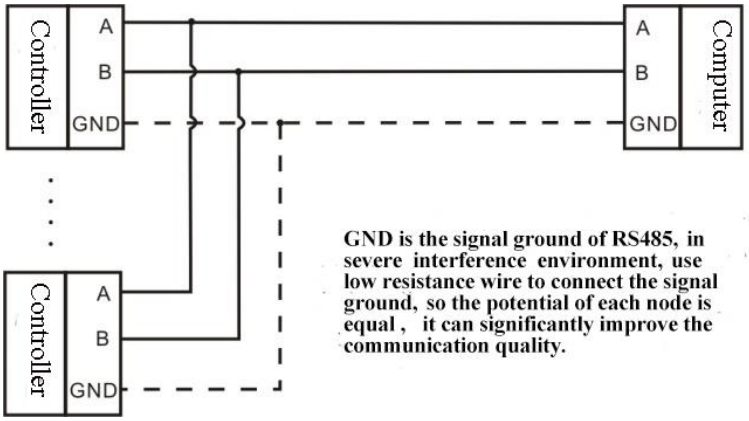
## **2.5** Serial Port Connection

**GMC-P7(F8)** provides two serial **RS485** communication interfaces, one **RS232** communication interface, the interface is shown in the following figure. Serial port 1 is RS-485 mode (terminal port **A1, B1, GND1**); Serial port 2 is RS-485 (terminal **A2, B2, GND2**) and serial port 3 is RS-232 (terminal **TX, RX, GND**). Serial port support: **MODBUS** protocol, **continuous** mode**, YH** protocol and **print** mode.

**COM1, COM2**: Standard instrument serial port **RS485**

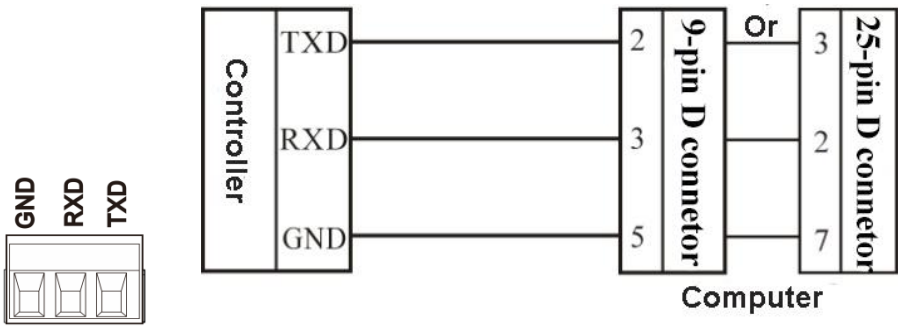



Instrument and computer connection diagram




Instrument and host computer connection diagram (**RS-485** mode)

**COM3**: Instrument standard serial port **RS232**




Instrument and host computer connection diagram (**RS-232** mode)

Note: If the serial port cannot communicate, please check:

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

b) **GND** must be connected in **RS232** mode.

c) Make sure that the parameters of the connection port are consistent with those of the upper computer. The slave number, baud rate, data format and communication protocol must be consistent with the upper computer and PLC.

## **2.6** Analog connection


**Gmc-p7** has analog output function, **1** analog output function(optional). Interface **AO+** (positive), **AO- (**negative).
Analog output is divided into **voltage output type** and **current output type**.
The user can choose the corresponding mode in the output mode.
For the selection of analog mode parameters, see *Section 3.6.3* Analog parameters. For analog calibration, see *Section 3.7.3 Analog Calibration*

## **2.7** Network Port Connection

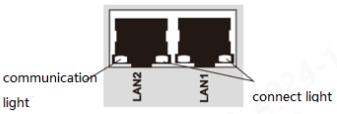
GMC-P7**(F8)** products support ordinary network port communication and **PN/EIP** bus communication(optional function, order need to declare). Support **TCP** protocol (**Modbus/TCP, Cont-A/TCP, Cont-B/TCP, r-Cont/TCP, rE-Cont/TCP, YH/TCP**) and **EIP/PN** bus protocol.

Dual network port option, network port built-in switch, easy to cascade.

With the single-network port option, TCP is supported**.**

### 2.7.1 Troubleshooting Network Port Faults

**If the network port is not communicating, please check**:




1) Check the network port indicator.
The hardware connection is normal, and the internal communication light of the instrument indicator is always on.The network cable is connected properly, and the connection indicator is blinking.

2) Check whether the communication protocol is consistent with the host computer and PLC.
3) Verify that GMC-P7 **(F8)** can be pinged by the network. If not, check the hardware interface section.
4) Confirm whether there is an **IP** conflict.
5) Restart the instrument.

## **2.8** User Permission description

In order to prevent personnel from misoperating the instrument**, the GMC-P7 (F8)** transmitter provides level 2 permissions (operator, administrator) to select, operator and administrator permissions are as follows:

| **Permissions** | **Operation content** |
|---|---|
| Operator | Can view and set all parameters under operator login permissions, including setting basic parameters, IO parameters, application Settings, communication Settings, and IO parameters definition and testing. |
| | Can operate the home interface shortcut key on the home interface. |
| Administrator | Can perform all the privileges of operator. |
| | Can calibrate, view and set the system maintenance parameters, including reset parameters, set the system language, change the user password and other parameters. |

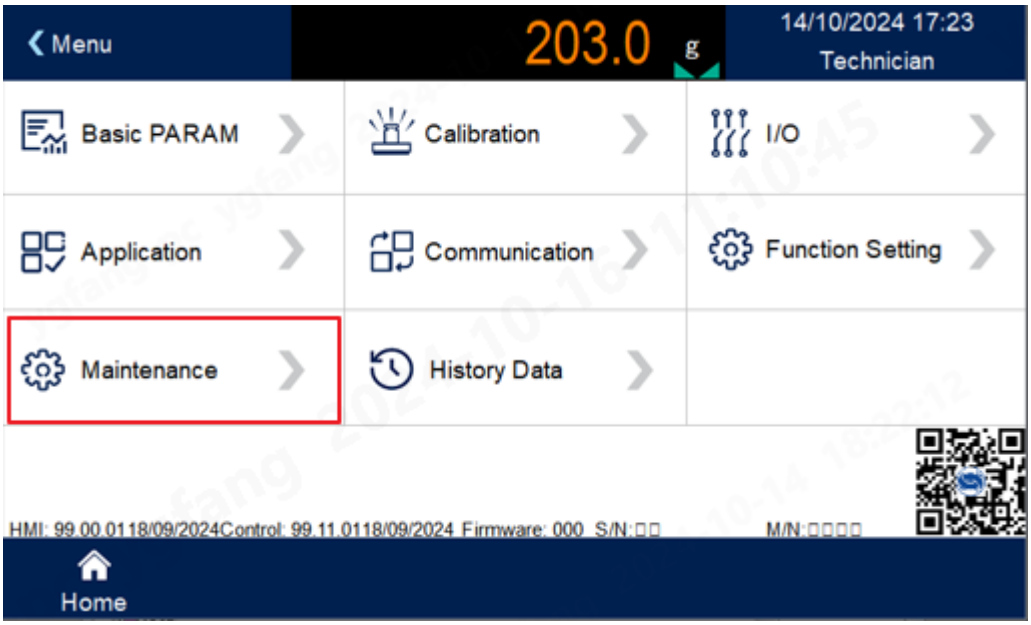
Permission description:

- When the instrument is powered on, auto log in with operator.
- Switch permissions, click the user permissions in the upper right of the operation interface, the pop-up [Switch to technical] dialog box, click [Enter], could return to the login interface, select the corresponding permissions and user password to log in.

# Chapter 3 menu overview

## 3.1 Menu

Click the menu to query and modify each parameter item.




- Click each parameter to enter the current parameter to view and set the owning parameter information.
- Click the upper left of the screen to return to the previous screen.

| Menu Items | Parameter list | Parameter Description |
|---|---|---|
| Basic Parameters | Zero operation | Set the parameters related to zero. |
| | Tare operation | Set parameters related to tare operation. |
| | Stabilizing and zeroing | Set parameters such as stability judgement and zero trace range time. |
| | Filtering and sampling | Set parameters such as filtering and AD sampling speed |
| Calibrate | Weight calibration | Set the unit, decimal point and carry out zero calibration, weight calibration. |
| IO module | Input | Set the input port function, high and low level mode, and debounce time. |
| | Output | Set output port function, high and low level. |
| | IO test | Test whether the input and output ports are connected normaly. |
| Function setting | Application mode | Set the instrument application mode, according to the application mode is different, the function setting parameters are different. Application modes include simple weighing, static weighing, counting mode and animal weighing. |

| | | |
|---|---|---|
| | Static weighing | Tolerance type, target batch, target value, upper absolute value/relative value/percent, lower absolute value/relative value/percent, automatic print switch and other parameter Settings |
| | Animal weighing | Animal weighing parameters, such as delay sampling actual, maximum sampling time, signal holding range and other parameters |
| Communication setup | Serial Port 1 | Set the serial communication format. |
| | Serial Port 2 | |
| | Serial Port 3 | |
| | Network port | Set the communication format of network ports, communication buses, etc |
| | Analog value | Set analog related parameters, such as output mode, min/max output, etc. |
| | Print | Set parameters such as print format, print language, etc. |
| System maintenance | Style setup | Set the screensaver time and system date, and switch the system language. |
| | Serial port testing | Use send and receive tests to test whether the communication serial port connection is normal. |
| | Analog calibration | Perform analog current and voltage calibration. |
| | System Information | Display system information as well as change user password and enable remote calibration. |
| | Reset parameters | Restore parameters to the factory Settings. |

## **3.2** Basic Parameters

### 3.2.1 Basic Parameters

| Parameter Items | Parameter subentries | Instructions |
|---|---|---|
| **Zeroing operation** | Successful conditions for zeroing: 1) the weighing platform is stable; 2) the weight is within the zero range.<br>To achieve zero operation: 1) the main interface zero by press key; 2) the input port zero signal is valid; 3) zero by the communication port | |
| | Power-on zero | Initial value: **0**; Range: **0~99(*** full scale %); When this parameter is set to **0**, disable the automatic power-on zero function. Otherwise, perform zero operation according to the zero range during initial power-on. |
| | Remote zero switch | Initial value: On; If enabled, zero operation can be performed through the communication port. If this parameter is set to off, zero by communication cannot be performed. |
| | Zero range | Initial value: **20%**; Range: 1 to 99**(*** full scale %) |

| | | |
|---|---|---|
| | Tare operated switch | Initial value: On; Range: On, off; Open/close tare by serial port or **I**/O port, set to on to set tare. |
| | Negative net weight correction | Initial value: Off; Range:<br>**Off:** Negative net weight is not processed.<br>**Corrected 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<br>**Return gross weight:** When the instrument is in net weight mode, if the weight is negative and stable, the instrument automatically returns to gross weight mode. |
| | Tare Record | Initial value: Off; Range: On; Off; If on, after power off and restart, the instrument still retains the previous tare weight. |
| | Chain tare | Initial value: Close; Range: On; Off; If it is open, the net weight state can continue to tare, and the absolute value of the gross weight can be tared within the tare threshold. |
| | Taring threshold value | Initial value: **9d**; Range: **1-20**; tare can be removed manually within the threshold range. |
| **Stabilize and trace zero** | STAB range | Initial value: **1d**; Range: **0-99**, when the parameter is **0**, the stability function is turned off, and the weight stability marker is always valid. 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 |
| | TrZero range | Initial value: **1d**; Range 0-99d. Zero tracking is turned off 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 position. |
| | STAB time | Initial value: **1000ms**; Range: **1-5000** ms. If the weight change range does not exceed the stability range during this time, the weight is stable |
| | TrZero Time | Initial value: **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 position |
| **Filtering and sampling** | Digital filtering | Initial value: **8;** Range: **0-9**; The larger the number, the higher the filtering intensity, but the instrument response time will be longer. |
| | Steady State filtering | Initial value: **0;** 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** sampling speed | Initial value: **120;** Range: **50**; **60**; **100**; **120**; **200**; **240**; **400**; **480**; **800**; **960 (SPS)**. |
| | Signal range | Initial value: 0-10mV; Range: 0-5mV; 0-10mV; 0-15mV |

| | | |
|---|---|---|
| | | Instrument adjusts the signal acquisition range according to the input range to ensure more accurate measuring. |

## **3.3** Calibration

When the GMC-P7 (F8) weighing controller or any part of the weighing system is changed for the first **time and the current device calibration parameters cannot meet the user's requirements, the instrument should be calibrated.** Calibration can determine the system zero position, gain and so on of the weighing system.
**※ Note: Need to log in as an administrator to view the calibration parameters.**

### **3.3.1 Calibration parameters**

| **Parameters** | **Parameter subentries** | **Instructions** |
|---|---|---|
| Weight calibration | Unit | Initial value: **kg**; Range: **t**; **kg**; **g**; **lb** |
| | Decimal point | Initial value: **0**; Range: **0**; **0.0**; **0.00**; **0.000; 0.0000** |
| | Division value | Initial value: **d=1**; The instrument indicates the minimum change in value<br>Range: **1**,2,**5**,**10,20**,**50,100,200,500** |
| | Capacity | Initial value: **10000**; The maximum 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. |
| | Weight correction Coefficient | Initial value: **1.00000**; After calibration, if the zero point is correct, there is a deviation in weight, which can be used to correct the weight value.<br>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** |
| | Manually calibrate zero millivolts | Range: **0 to 5.0000mV** Manually enter the voltage with **4** decimal points as the zero point voltage |
| Automatic zero calibration | After emptying the weighing platform, press the OK key to take the current acquired voltage value status as the zero voltage. | |
| Weight calibration | Calibration point **1** Relative millivolts | The millivolt value corresponding to the calibration weight. When the previous points are calibrated, the relative millivolts of the other points will be reset to the uncalibrated state (default: **10.0000mV**, **10000kg).** For example, after calibration point 1, calibration points 2-5 are reset to 0 |
| | Calibration point **2** relative millivolts | |
| | Calibration point **3** relative millivolts | |
| | Calibration point **4** relative millivolts | |
| | Calibration point **5** relative millivolts | |

| | | |
|---|---|---|
| | Calibration point **1** weight weight | the weight calibration point and enter the weight value of the corresponding weight. Range: **0** to maximum range. Refer to section 3.3.3 Weight calibration instructions for details. |
| | Calibration point **2** weight of the weights | |
| | Calibration point **3** weight weights | |
| | Calibration point **4** weights | |
| | Calibration point **5** weight weights | |
| Theoretical value calibration | Loadcell sensitivity | Initial value: 2.0000; Range: 0.000-3.9999. Loadcell true sensitivity, 4 decimal points, if multiple Loadcells is the average sensitivity |
| | Total loadcell range | Initial value: **10000**; Range: **0**~ maximum range. Loadcell true range, if there are multiple loadcells, is the sum of all loadcell ranges |
| | Theoretical values in effect | Initial value: Off; Range: Off; On. Enable theoretical value calibration for theoretical value calibration to take effect. |
| Flow parameters | Sampling window | Initial value: **1.000s**; Range: **1.000-60.000s.** Define the window length of the traffic calculation. |
| | Maximum discharge | Initial value: **10000kg/h**; Range **0-999999**. Define the maximum flow rate for use as an indication of **DA** output |
| | Flow Unit | Initial value: / hour; Range: / hour, minute; The unit in which the flow is displayed. |
| | Flow Display | Initial value: Off; If it is off, the main interface displays the weight value; If on, the main interface displays the flow value. |

### 3.3.2 Zero calibration

Zero calibration means zero calibration of the weighing platform.

There are two ways to perform zero calibration: automatic zero and manual zero millivolts. When the new equipment or weighing structure is adjusted, the "automatic zero calibration" method must be used for zero calibration.

**Automatic zero calibration**:

Calibration success condition: the weighing platform is stable.

Calibration interface displays the loadcell voltage value. After emptying the weighing platform, press **[automatic zero calibration]** key, the relative zero voltage value is **0.0000mV**, that is, the current state is calibrated to the zero state. As shown in the following picture:

The **relative zero voltage value is 0.66**88mV

**Manual zero millivolts**:

In the manual zero millivolt in the [Weight calibration] interface, manually enter the zero corresponding millivolt value, that is, the input value status is calibrated to zero.

※ Generally used in the case of no weight calibration, the value recorded by the data recorded during the weight calibration is used for manual input.

### 3.3.3 Weight calibration

Weight calibration 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 requirements.

**Calibration method**:

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

Step: Press the key of "Weight calibration", load the weight to the weighing platform, and enter the weight value corresponding to the weight in the standard point X weight. (X=**1~5**)

Note the use of multi-point calibration:

1） The user can choose the number of standard points, such as single point calibration, after the completion of the calibration of the first weight point that is, the weight of the standard point 1 weight can be quit.

2） Can not be calibrated across the point, otherwise there is an alarm warning of "uncalibrated gain of the previous point". If the **3-point** calibration is used, it is necessary to calibrate the calibration point **1**, the calibration point **2** and the calibration point **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 of the calibration point **2** must be greater than the weight of the calibration point **1**, otherwise the alarm of "the weight calibration is less than the previous point" will appear.

### 3.3.4 Calibration with theoretical value

Calibration with theoretical value refers to the weight calibration operation through the input to connect the loadcell sensitivity and loadcell range value.

Calibration with theoretical value requires **3** steps:

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

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

3） Turn on the Theoretical Value Take Effect switch.

## **3.4** IO module

### 3.4.1 Input

The standard instrument is equipped with **5** input ports, each input port can be set separately application function, mode (high and low levels are valid), debounce time.

Input port unified level mode, that is, set **IN1** mode to high level, then **IN2~IN5** set to high level at the same time.

| Parameter Items | Parameter content | Instructions |
|---|---|---|
| input **(IN1 to IN5)** | Input port configuration | Optional functions: No function, zero, zero calibrate, tare, clear tare, gross/net weight switch, enable comparison point, print, print feed paper;<br>※ Defined as no function, that is, the input port has no effect. |
| | Input mode | Initial value: Low level;<br>Optional: High level, low level<br>**(Note: the input port mode changes synchronously, that is, IN1~IN5 changes the mode, and other inputs change accordingly, keeping the input port mode consistent.)** |
| | Debounce time | Avoid misjudgment from signal shake. Initial value: **5ms**; Range :**0-200ms** |

Input port function description:

| Application function | Meaning |
|---|---|
| Non-function | No input |
| Zero | When the signal input is valid, the instrument performs zero. |
| Zero Calibration | When the signal input is valid, the instrument performs zero calibration. |
| Clear tare | When the signal input is valid, the tare function is performed. |
| Tare | When the signal input is effective, the clearing tare function is performed, that is, the removed tare weight is restored. |
| Gross/net weight switch | When the signal input is valid, the gross net weight is switched. |
| Enable comparison point | Defined the function, whether the comparison point output is controlled by the status of the I/O port. If the comparison condition is true, and the input is valid, the comparator output will be valid, otherwise no output. If the function is not defined, the comparison condition is valid and there is an output, which is not controlled by the input. |
| Print | When this signal input is valid, the print function is performed. |
| Print feed paper | In the non-print state, when the signal input is valid, print feed paper for 1 line. |

### 3.4.2 Output

Each output can be set separately application function, mode (high and low levels are valid). The initial default is no output, the output port can set the high and low level mode separately, which needs to be defined by the customer.

| Parameter Items | Parameter content | Instructions |
|---|---|---|
| Output (OUT1-OUT **9**) | Output port configuration | Optional functions: No function, stable, zero, communication heartbeat, weighing OK, ready;<br>※ Defined as no function means that the output port has no function. |
| | Output mode | Initial value: Low; Optional: High, low<br>**(Note: Only output OUT1-OUT5 supports mode switching, OUT6-OUT9 is relay output and does not support mode switching)** |

Output outlet function description

| Application function | Meaning |
|---|---|
| Non-function | No output |
| Comparator 1-8 | When the condition of comparator **1-8** is fulfilled, there is output; If the input port is set as the enable comparison point, the input is valid, and the comparator has an output. |
| Stability | Effective when the instrument stability marker bit has an output. |
| Zero | Instrument zero indicator is valid when there is an output. |
| Net weight | The output is valid when the instrument is at net weight. |
| Printing | The output is valid when the instrument is in the printing process. |
| Minus weight | There is output when the displayed weight is less than **0**. |
| Communication heartbeat | **1HZ** square wave is emitted only for serial communication. |
| Upper Limit | This signal output is valid when weight > absolute value of upper limit/target value + relative value of upper limit/Target value +(Target value * percentage of upper limit) is displayed. |
| Qualified | When the lower limit absolute value <= display weight <= upper limit absolute value/target value - lower limit relative value <= Display weight <= target value + upper limit relative value/target value - (target value * lower limit percentage) <= Display weight <= target value + (target value * upper limit percentage), the signal output is valid |
| Lower Limit | The signal output is valid when displaying weight > absolute value of lower limit/target value - relative value of lower limit/target value - (target value * percentage of lower limit) |
| Null Zone | This signal output is valid when the current display weight is zero. |

### 3.4.3 IO test

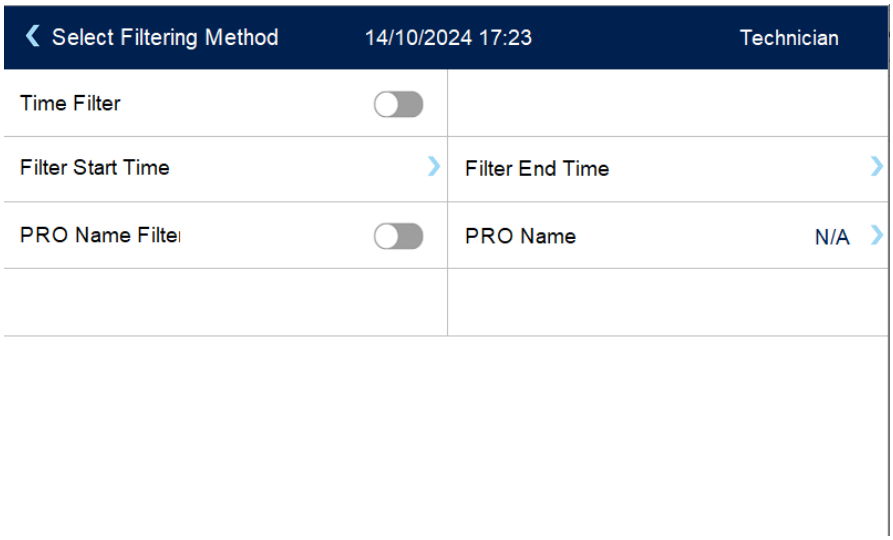
This item can check whether the output and input interfaces of the instrument and external devices are connected normally through the IO test. Before the IO test, the test switch is opened first, and then the output and input port test is carried out.

OUT1 to OUT9 Test: In the IO test interface, perform the output test. That is, after clicking the corresponding output port button, the interface port color will light up, and the corresponding external connection output state should be valid. If it is invalid, it indicates that the connection is abnormal.

**IN1~IN5 test**: In the IO test interface, when the external input signal is valid, the color of the corresponding input definition port under the interface is lit up as green. When the external input is effective, the interface does not respond, it indicates that the connection is abnormal. Check the power input and wiring of the IO.

## **3.5** History Record

Weighing record information can be consulted on the history interface. Under this parameter, "U disk export", "data clear" and "clear" can be accumulated. At the same time, the information of the weighing record can be screened and queried, which can be screened by time and can also be queried by Product name. The user can set it by himself. It can also be queried by reset screening according to the instrument default screening way. Deleting historical data records requires administrator and above permissions, otherwise the pop-up prompts "Insufficient permissions, please log in again!" .




## **3.6** Communication Settings

**GMC-P7(F8)** has a rich communication function interface: **2 RS485** (serial port **1, serial port 2**), bus communication interface (support **PN, EIP** bus function). Serial port connection refer to Section 2.5.

### **3.6.1 Serial Port Parameters**

| **Communication Parameters** | **Parameter entries** | **Instructions** |
|---|---|---|
| Serial **1**/ Serial **2**/ Serial **3** | Slave number | Initial value: **01**; Range: **01-99** |
| | Baud Rate | Initial value: **38,400**; Range: **1200**,**2400**,**4800**,**9600**,**19200**,**38400**,**57600**,**115200** **(Note: Only 9600~115200 is supported under the Print protocol)** |
| | Communication protocol | Initial value: **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 | Initial value: **8-E-1**; Range: **8-n-1**, **8-e-1**, **8-o-1**, **7-e-1**, **7-o-1** (**Note**: Modbus protocol and Print protocol only support data formats with 8-bit data bits) |

| | | |
|---|---|---|
| | Dual byte mode | Initial value: **AB-CD**; Range: **AB-CD** (high byte before), **CD-AB** (low byte before) |
| | Continuous send interval | The time interval between frames under the continuous transmission protocol. Initial value: 20ms; Range 0-1000ms**.** |

### 3.6.2 Network Port Parameters

| | | |
|---|---|---|
| Network Port Parameters (**Optional network port expansion board, this parameter can be seen**) | Local IP | Initial value: **192.168.0.100**, range: **0.0.0.0 to 255.255.255.255.** |
| | Communication mode | **Initial value: Modbus/TCP;** When selecting a common network port, the protocol is optional: **Modbus/TCP,Cont-A/TCP,Cont-B/TCP,r-Cont/TCP, rE-Cont/TCP, YH/TCP** |
| | Port Number | Initial value: **502;** Range**:** 1-65535**.** |
| | Sending interval | Initial value: **20ms**; Range: **0 to 1000.** |
| Network Port Parameters (**This parameter is visible when optional Profinet/EIP add-on board**) | Local IP | Initial value: **192.168.0.100**, range :**0.0.0.0 to 255.255.255.255.** |
| | Parameter write switch | Initial value: Off, range off, on. On: 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.<br>Off: When **PN/EIP** communication, instrument parameters are not controlled by "module parameters" of the master station. |
| | **GSD/EDS** file type | If the **PN** bus communication mode is optional,<br>**Standard version**: Use the original **GSD**, that is, Chapter **3.9.7.1**.<br>**Simple version**: The GSD is a simplified version of the standard GSD, and the simplified content is referred to Chapter 3.9.7.2.<br>**Simple Version2**: Using the Lite version's loop parameters, see Chapter **3.9.7.2** for details. (Note: Simple Version**2** does not have loop parameters)<br>Note: After changing the **GSD** file type, you must restart the instrument.<br>If the **EIP** bus communication mode is selected,<br>**Standard version**: Use the original **EDS,** Chapter 3.9.8.1**.**<br>**Simple version**: EDS is a simplified version of the standard EDS, and the simplified content is referred to Chapter **3.9.8.2**. |
| | **Port Number** | Set the Instrument port number, initial value: **502**; Range: **1 to 65535.** |

### 3.6.3 Analog parameters

| | | |
|---|---|---|
| Analog value | Output mode | Initial value: **4-20mA**; Optional: **4-20mA,** 0-10V**,** user current, user voltage. |
| | Associated variables | Analog corresponds to weight form. Initial value: weight; Optional: weight, net weight, gross weight. |
| | When the output mode is selected as User current, User voltage mode, the following parameters are visible. | |
| | Minimum output | Set the minimum analog output (**0-24mA/0-10V** can be set), initial value: **0mA/0V**. |
| | Zero output | Analog output when setting zero (**0-24mA/0-10V** can be set), initial value: **4mA/0V**. |
| | Maximum capacity output | Analog output when setting maximum capacity (**0-24mA/0-10V** can be set), initial value: **20mA/10V**. |
| | Maximum output | Set the maximum analog output (**0-24mA/0-10V** can be set)**,** initial value: **24mA/10V**. |

### 3.6.4 Print parameters

| | | |
|---|---|---|
| Print | Print content | Initial value: condensed information; Condensed information, detailed information is optional |
| | Print spacing | Initial value: **2**; Number of lines spaced between each print, range **0-99** |
| | Print language | Initial value: English; Select Chinese and English |
| | Printer model | Initial value: Epson LX-310, optional: Epson LX-310, Rhonda RD-TS-4, Weihuang WH-E26. |
| | Number of header lines | Initial value:**4**; Choose how much head-of-line information to use, range:**0-4** |
| | Number of footer lines | Initial value: **4**; Choose how much end-of-line information to use, range:**0-4** |
| | **1** line of header | Default: ----------; He**ad**er information line, 16 English characters editable |
| | **2** lines of header | |
| | **3** lines of header | |
| | **4** lines of header | |
| | 1 line of footer | Default: ----------; footer informa**ti**on line, 16 English characters editable |
| | **2** line of footer | |
| | **3** line of footer | |
| | 4 line of | |

| | | |
|---|---|---|
| | footer | |

When the communication protocol of serial port parameter "Print", under the main interface, press 

or set the input as print to print the instrument data.

**Print format setting application example**:

| Parameter setting | | Print ticket contents (in Chinese) |
|---|---|---|
| Number of lines of header information | **2** | ----------<br><br>------**TEST**------<br>2022/11/08 17:12<br>Ticket number x**xxxxxxx1**<br>Show weight<br>Net weight -**X.XXXX kg**<br>------**END1**------<br><br><br><br><br>---------- (second print) |
| Number of lines of last information | **1** | |
| Print interval | **3** | |
| Print contents | **Display weight** | |
| Print language | Chinese | |
| **1th** lines of header information | ---------- | |
| **2th** lines of header information | ------**TEST**----- | |
| **1th** lines of footer information | ------**END1**----- | |

## **3.7** System Maintenance

This parameter is used to reset the instrument and modify system parameters. Perform this operation with caution and log in as an administrator
※ **Note: log in as an administrator to view the system maintenance parameters.**

### 3.7.1 Parameter Description

| System maintenance | Parameter subitems | Instructions |
|---|---|---|
| Style Settings | Screensaver time | You can set the time when the screen is off.<br>Default: Never. Optional never /**30** seconds /**60** seconds /**5** minutes /**10** minutes /**30** minutes. |
| | System language | Set the system language. Initial value: Chinese; Chinese, English optional. |
| | Date and time | Set the instrument to display time. |
| | Backlight switch | Turn on the backlight switch, which will turn off the screen. |
| | Backlight time | Turn on the backlight switch and set the backlight time. When the time arrives, the instrument will display and click the screen to light the screen again. Initial value: **15s,** range: **15 to 1800s**. |
| Serial Port | Send test | Refer to Chapter 3.7.2 Serial Port Tests **for details**. |

| | | |
|---|---|---|
| Test | Receive Test | |
| Analog calibration | Current calibration | Refer to Chapter **3.7.3** Analog Calibration for details. |
| | Voltage calibration | |
| System information | **MAC** address | View the **MAC** address of the instrument, which can only be queried but not modified |
| | Serial number | View the serial number, which can only be queried and cannot be modified |
| | Communication heartbeat | Initial value: Serial port **1**, optional serial port **1**, serial port **2**, serial port **3**; When the output port is defined as the communication heartbeat, the corresponding serial port emits **1HZ** square wave when communicating. |
| | Changing the user password | Use this item to change the administrator password. |
| | Instrument **138** number | Displays the **138** number of the instrument, which can only be queried and cannot be modified |
| | Voltage correction factor | Default: **1.0000**; Used to calibrate the input voltage of the instrument loadcell. It can only be queried but not modified |
| | Remote calibration switch | Initial value: Off; On or off optional. This enables remote calibration of the instrument through communication. |
| | Weight display type | This parameter is visible when Profinet/EIP add-on board is selected. This parameter is used for **PN** communication, through this switch to switch the display of communication parameter weight display is integer weight or floating point weight. Initial value: integer type; Optional: integer, floating point. |
| Reset parameters | Reset all parameters | Restore all parameters to the factory Settings. |
| | Reset all parameters (except for calibration) | Restore parameters other than calibration to their factory Settings. |
| | Reset calibration parameters | Click this item to restore the calibration parameters to the factory Settings. |
| | Reset application parameters | Click this item to restore application parameters to the factory Settings. |
| | Reset communication parameters | Click on this item to restore the communication Settings parameter value to the factory Settings |

| | | |
|---|---|---|
| | Reset basic parameters | Click on this item to restore the basic parameters to the factory Settings |
| | Reset IO definition | Click on this item to restore the value of the IO definition parameters to the factory setting. |

### 3.7.2 Serial Port Test

The function of serial port test is to send and receive data in cyclic transmission mode, fixed baud rate **(9600)**, data format **(8-N-1)** and 1s transmission interval to test the status of serial port connection.

**Send Test:** Send data "**COMx Test nnn**". X=1 if serial port **1,** X=**2** if serial port 2 test.

**Receive test**: The external sends test data (only ASCii code) to the instrument and displays the data on the display, with no more than 10 bytes of data per frame**.**

If the external sends **30 31 41** to the instrumnet, and the instrument displays the following figure, it indicates that serial port **1** is connected normally.

Serial port 1:001 A 0D
Serial Port 2:

Serial Port 3:

### 3.7.3 Analog calibration

The instrument is equipped with analog expansion board, which has analog output function. Analog calibration parameters can be selected in the "Communication Settings" - "Analog" parameter list as voltage, current output mode (see section **3.6.3** Analog parameters). Under normal display state, the analog output can be viewed on the main interface, taking the current output mode as an example:

**Analog output value: 3.920mA** The instrument has been calibrated for the analog output when leaving the factory, and the user does not need to calibrate the analog output. If the analog output of the instrument is abnormal, the user can calibrate the analog output by himself. The calibration method is as follows:

Take current calibration as an example (it is recommended to calibrate under the guidance of professionals) :

Tools: instrument, multimeter;

Steps: 1) Multimeter Connect **VO+, VO-** output outlets of the instrument,

2) In the 【 System maintenance 】 -- 【 Analog calibration 】, adjust the digital code of the calibration point **1**, observe the change of current value, and the analog value changes with the **DA** code. Constantly adjust the calibration fixed point **1** digital code, when the mutilmeter display value is adjusted to the required current value, enter the value displayed by the multimeter tests in the calibration fixed point **1** current value.

3) Then calibrate other points, which can refer to the current calibration of calibration point **1**. Support **5** points calibration, customers can adjust the calibration according to needs.

## **3.8** Function Setting

| Parameter items | Instructions |
|---|---|
| Application modes | Simple weighing, static weighing, counting mode (parameters are not available), animal weighing. |
| When the application mode is static weighing, the parameters are as follows | |
| Target batch | Set the number of target batches, initial value: 0PCS; Range: 0~999999; When the cumulative batch reaches the set target batch, the interface pop-up prompts [target batches complete], and automatically empty the cumulative batches, can start the next weight check. |
| Target Value | Set the standard qualified value of the test weight. If the tolerance type is relative value/percentage, the parameter can be set. Initial value: 1; Range: 1~ maximum range |
| Forbid operator modify parameters | Set whether the operator could modify parameters. Initial value: 0; When closed, the operator is allowed to modify parameters. When Opened, the operator is not allowed to modify parameters |
| Clear Total ACUM | Clear total cumulative value, cumulative batches. |

## **3.9** Recipe Parameters

When the application mode under the parameter [Function setting] is set to static weighing, can click the recipe parameters on the main interface, the parameters are as follows:

| Parameter Items | Instructions |
|---|---|
| Current recipe ID | Set recipe number, initial value: 1; Range: 1 to 10. |
| PRO name | Set the product name. |
| Tolerance entry | Which method is selected as the way to set the check weight parameters. Initial value: Absolute; Absolute, Deviation, percentage optional |
| Target value | Set the standard qualified value of the test weight. If the tolerance type is relative value/percentage, the parameter can be set. Initial value: 1; Range: 1~ maximum capacity. Consistent with the parameters under the function setting interface. |
| Upper limit absolute /deviation/percentage | Set the upper limit value; Set the upper limit according to the type of tolerance you set. Initial value: 0; Is absolute value, range: 0~ maximum capacity; Is deviation value, range: 0~ maximum capacity; For percentage, range: 0~99%. This parameter is consistent with the parameter under the function setting screen. |
| Lower limit absolute /deviation/percentage | Set the lower limit; Set the lower limit according to the tolerance type you set. Initial value: 0; Is absolute value, range: 0~ maximum capacity; Is deviation value, range: 0~ maximum capacity; For percentage, range: 0~99%. This parameter is consistent with the parameter under the function setting screen. |
| Preset Tare | Initial value: 0; Range: 0~Capacity; Set tare weight. If the value is not 0, this tare weight will be used for tare. |

## **3.10** USB flash Drive Upgrade software

### 3.10.1 Front-end upgrade

| | |
|---|---|
| 1. | Plug the USB stick containing the upgrade kit "tpcbackup" into the instrument; |
| 2. | Pop-up "the mcgsTpc USB flash drive comprehensive function package, click 'Yes' to enter the system setting interface and start the comprehensive function package, click' No 'to exit", click' yes' to pop up "User project update button" |
| 3. | Click the "User Project Update" button, select the project to start downloading |
| 4. | The download automatically restarts after success |

### 3.10.2 Back-end upgrade

The steps are as follows

| | |
|---|---|
| **1**. | Insert the U disk into the computer, and create a folder "**GMC-P7 (F8)**" in the U disk; |
| **2**. | Store the **"GMC-P7(F8)-Upload.gm**" file in the "**GMC-P7(F8)**" folder; |
| **3**. | Insert the U disk into the instrument, enter the system information interface of the system maintenance of the instrument (administrator permission is required), press **3s in the lower left blank**, GMC-P7(F8) online upgrade interface appears, click to jump to the upgrade home button, jump to the upgrade interface, click upgrade, click upgrade again, the word "under upgrade" appears, indicating that the instrument is upgrading backend |
| **4**. | Wait for the progress bar to finish, countdown **10s** after the upgrade successfully jump to the startup login interface |

### 3.10.3 Upgrade Startup Screen

Here are the steps:

| | |
|---|---|
| 1. | Save the (resolution 800*480, format.bmp) picture file and boot interface project package (tpcbackup) to the root directory of the USB flash drive; (**Note: this project package tpcbackup and** the **frontend upgrade kit tpcbackup upgrade is not the same file**) |
| 2. | Insert the USB flash drive into the instrument; |
| 3. | The instrument pops up the display box of "device vendor U disk toolkit", select "Update startup bitmap" |
| 4. | Enter the Logo selection interface, select the picture to be upgraded, click OK, prompting to restart after the successful update of the bitmap. |

## **3.11** Communication protocol and address

### 3.11.1 Modbus Protocol

3.11.1.1 Function Code and Exception Code Description

Function codes supported by the instrument

| **Function code** | **Name** | **Instructions** |
|---|---|---|
| **03** | Read register | Read up to **125** registers at a time |
| **06** | Write a 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 a part of the read 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 a disallowed address. |
| **03** | Illegal data value | The written data does not conform to the allowed range. |
| **04** | Slave machine failure | An unrecoverable error occurs when the instrument is attempting to perform the requested operation. |
| **07** | An unsuccessful programming request | For the instrument, the command received cannot be executed under the current conditions. |

3.11.1.2 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**) Indicates an interval of more than 3.5 characters at the end of a frame. 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 Data bits, 1 Stop Bit, no check (**8-N-1**)

Code: Binary

**ASCII mode**

When communicating in ASCII mode, every **8** bits (**1** byte) in a message is transmitted as 2 ASCII 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 Data bits, 1 Stop Bit, no check (**8-N-1**)

Code: ASCII code

3.11.1.3 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) | | | |
| **40003-40004** | **0002-0003** | Reserved | | | |
| **40005** | **0004** | Weight status flag bit | Bit | Instructions | ※ 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**" |
| | | | **D13- 15** | Hold | |
| | | | **D12** | Bipolar | |
| | | | **D11** | Reserved | |
| | | | **D10** | ADC failure | |
| | | | **D09** | Current display net weight | |
| | | | **D08** | Millivolts stable | |
| | | | **D07** | Loadcell negative overflow | |
| | | | **D06** | Loadcell positive overflow | |
| | | | **D05** | Weight negative overflow | |
| | | | **D04** | Weight positive overflow | |
| | | | **D03** | Overflow status | |
| | | | **D02** | Display weight is negative | |
| | | | **D01** | Zero | |
| | | | **D00** | Stable | |
| **40006** | **0005** | Error Code **1** | **D13-15** | Hold | |
| | | | **D12** | Perform remote calibration when prohibited | |
| | | | **D11** | Reserved | |
| | | | **D10** | The previous weight point is not calibrated | |
| | | | **D09** | Exceed the minimum resolution | |
| | | | **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 overflow positively when Weight calibration | |
| | | | **D04** | The Loadcell overflow negatively when weight calibration | |
| | | | **D03** | Unstable during weight calibration | |
| | | | **D02** | Loadcell overflow positively at zero calibration | |
| | | | **D01** | Loadcell overflow negatively during zero calibration | |
| | | | **D00** | Unstable during zero calibration | |
| **40007** | **0006** | Error Code **2** | **D14-15** | Hold | |
| | | | **D13** | Allow Remote tare switch is not enabled when remote tare is performed | |
| | | | **D12** | Does not allow taring in net weight status | |
| | | | **D11** | The weight is negative when clearing tare | |
| | | | **D10** | Loadcell overflow positively when taring | |
| | | | **D09** | loadcell overflow negatively 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** | Loadcell overflow positivly when zeroing |
| | | | **D04** | Loadcell overflow negativly when zeroing |
| | | | **D03** | Unstable when zeroing |
| | | | **D02** | Zero out of range |
| | | | **D01** | Zeroing unstable during power-on |
| | | | **D00** | The power-on zero is out of range |
| **40008-40010** | **0007-0009** | Reserve | | |
| **40011** | **0010** | Process status flag bit | **D12-15** | Reserve |
| | | | **D11** | In Current calibration |
| | | | **D10** | In Voltage calibration |
| | | | **D09** | IO test status |
| | | | **D08** | Printing, (valid when the instrument is performing the printing operation) |
| | | | **D07** | Comparator **8** reaches compare condition |
| | | | **D06** | Comparator **7** reaches compare condition |
| | | | **D05** | Comparator **6** reaches compare condition |
| | | | **D04** | Comparator **5** reaches compare condition |
| | | | **D03** | Comparator **4** reaches compare condition |
| | | | **D02** | Comparator **3** reaches compare condition |
| | | | **D01** | Comparator **2** reaches compare condition |
| | | | **D00** | Comparator **1** reaches compare condition |
| **40012-40018** | **0011-0017** | Reserve | | |
| **40019-40020** | **0018-0019** | Gross weight value (**4** bytes of signed integer) | | |
| **40021-40022** | **0020-0021** | Net weight value (**4** bytes of signed integer) | | |
| **40023-40024** | **0022-0023** | Tare value (**4** bytes of signed integer) | | |
| **40025-40026** | **0024-0025** | Reserved | | |
| **40027-40028** | **0026-0027** | Display weight value (floating point type) | | |
| **40029-40030** | **0028-0029** | Gross weight value (**4** bytes signed floating point number) | | |
| **40031-40032** | **0030-0031** | Net weight value (**4** bytes signed floating point number) | | |
| **40033-40034** | **0032-0033** | Tare value (**4** bytes signed floating point number) | | |
| **40035-40036** | **0034-0035** | Reserve | | |
| **40037-40038** | **0036-0037** | **AD** Internal Code after filtering | Internal code of ADC after filtering, Bipolar - signed number; Unipolar - unsigned number | |
| **40039-40040** | **0038-0039** | Loadcell voltage value | Signed numbers, integer, four decimal points | |
| **40041-40042** | **0040-0041** | Voltage value relative to zero point | Signed number, integer, four decimal points | |
| **40043 ~ 40091** | **0042-0090** | Reserve | | |
| **40092** | **0091** | Input status area | **Bit** | **Instructions** |
| | | | **D05-15** | Reserve |
| | | | **D04** | Input **5** status |
| | | | **D03** | Input **4** status |
| | | | **D02** | Input **3** status |

| | | | | |
|---|---|---|---|---|
| | | | **D01** | Input **2** status |
| | | | **D00** | Input **1** status |
| **40093** | **0092** | Reserve | | |
| **40094** | **0093** | Output status area | Bit | Instructions |
| | | | **D09-15** | Reserve |
| | | | **D08** | Output **9** status |
| | | | **D07** | Output **8** status |
| | | | **D06** | Output **7** status |
| | | | **D05** | Output **6** status |
| | | | **D04** | Output **5** status |
| | | | **D03** | Output **4** status |
| | | | **D02** | Output **3** status |
| | | | **D01** | Output **2** status |
| | | | **D00** | Output **1** status |
| **40095 ~ 40100** | **0094 ~ 0099** | reserve | | |
| **Basic parameter area, readable-writable** | | | | |
| **40101-40102** | **0100-0101** | Power-on zero range | **0%-99%** of the maximum range, initial value: 0 (off) | |
| **40103-40104** | **0102-0103** | Remote zero switch | 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** | Tare operated switch | Range: **0** (off), **1** (on); Initial value: **1** (on) | |
| **40109-40110** | **0108-0109** | Tare memory function | Range: **0** (off), **1** (on); Initial value: **0** (off) | |
| **40111-40112** | **0110-0111** | Negative net weight correction | Range: **0** (off), **1** (correct tare), **2** (return gross weight); Initial value: **0** (off) | |
| **40113-40114** | **0112-0113** | Preset tare | Range: **0** to full scale. Initial value: **0** | |
| **40115-40116** | **0114-0115** | Stable range | Range: **0-99d**, initial value: **1** | |
| **40117-40118** | **0116-0117** | Stable time | Range: **1-5000** milli seconds, initial value: **1000** | |
| **40119-40120** | **0118-0119** | Tracking zero range | Range: **0-99d**, initial value: **1** | |
| **40121-40122** | **0120-0121** | Tracking zero time | Range: **1-5000** milli seconds, initial value: **1000** | |
| **40123-40124** | **0122-0123** | Digital filtering | Range: **0-9**, initial value: **8** | |
| **40125-40126** | **0124-0125** | Steady State filtering | Range: **0-99d**, initial value: **8** | |
| **40127-40128** | **0126-0127** | AD Sampling speed | 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: **6-400Hz** | |
| **40129-40130** | **0128-0129** | Signal 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 | | |
| **Calibration parameter area, remote calibration switch in system information (readable and writable), otherwise read only** | | | | |
| **40201-40202** | **0200-0201** | Unit | Range: **0-3**; **0-t**, **1-kg**, **2-g**, **3-lb** | |
| **40203-40204** | **0202-0203** | Decimal point | Range: **0-4**; **0-0**, **1-0.0**, **2-0.00**, **3-0.000**, **4-0.0000** | |
| **40205-40206** | **0204-0205** | Division value | Range: **1,2,5,10,20,50,100,200,500** | |
| **40207-40208** | **0206-0207** | Capacity | Range: **0**- Division value ***200000** | |
| **40209-40210** | **0208-0209** | Reserve | | |
| **40211-40212** | **0210-0211** | Automatic zero calibration | Write **1** only; Write **1** to calibrate zero of the current state. Read: Current millivolts of the loadcell. Fix:**4** decimal points. | |
| **40213-40214** | **0212-0213** | Manual zero calibration | Range: **0-150000**; Write millivolts | |
| **40215-40216** | **0214-0215** | Calibration point **1** | Write weight value to calibrate weight calibration point **1** | Read as the relative millivolts of the calibration point. |
| **40217-40218** | **0216-0217** | Calibration point **2** | Write weight value to calibrate weight calibration point **2** | |
| **40219-40220** | **0218-0219** | Calibration point **3** | Write weight value to calibrate weight calibration point **3** | |

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|---|---|---|---|
| **40221-40222** | **0220-0221** | Calibration point **4** | Write weight value to calibrate weight calibration point **4** |
| **40223-40224** | **0222-0223** | Calibration point **5** | Write weight value to calibrate weight calibration point **5** |
| **40225 ~ 40230** | **0224 ~ 0229** | Reserve | |
| **40231-40232** | **0230-0231** | Weight correction factor | Write coefficient to calibrate the correction, write data integer, the system default data write data with **5** decimal points |
| **40233 ~ 40300** | **0232 ~ 0299** | Reserve | |
| **Application parameter area, readable and writable** | | | |
| **40301-40302** | **0300-0301** | Mode selection | Compare mode |
| **40303-40304** | **0302-0303** | Input **1** Function | Comparing modes: Range: **0-8**, **0-**No function, **1-**zero, **2-**Calibrate zero, **3-**tare, **4-**clear tare, **5-**gross /net weight switch, **6-**enable comparison point, **7-**print, **8-**print feed paper |
| **40305-40306** | **0304-0305** | Input **1** mode | Range: **0-1**, 0**:** low, 1**:** high,<br>(Note: Input **1** mode changes synchronously with input **2/3** mode, that is, as long as you change the mode of one input port, the other two input modes change accordingly) |
| **40307-40308** | **0306-0307** | Input **1** debounce time | Parameter range: **0-200ms**, initial value: **5ms** |
| **40309-40310** | **0308-0309** | Input **2** Function | Refer to Input **1** function description |
| **40311-40312** | **0310-0311** | Input **2** mode | Refer to Input **1** mode instructions |
| **40313-40314** | **0312-0313** | Input **2** debounce time | Refer to Input **1** debounce instructions |
| **40315-40316** | **0314-0315** | Input **3** Function | Refer to Input **1** function description |
| **40317-40318** | **0316-0317** | Input **3** mode | Refer to Input **1** mode instructions |
| **40319-40320** | **0318-0319** | Input **3** debounce time | Refer to Input **1** debounce instructions |
| **40321-40322** | **0320-0321** | Input **4** Function | Refer to Input **1** function description, can only be written when there is an **IO** attach board, otherwise read only |
| **40323-40324** | **0322-0323** | Input **4** mode | Refer to Input **1** mode description, can only write when there is an **IO** attach board, otherwise read only. (Note: the additional input **1** mode changes synchronously with the additional input **2** mode, that is, as long as the mode of one input port is changed, the other input port mode changes accordingly) |
| **40325-40326** | **0324-0325** | Input **4** debounce time | Refer to Input **1** debounce instructions |
| **40327-40328** | **0326-0327** | Input **5** function | Refer to Input **1** function description |
| **40329-40330** | **0328-0329** | Input **5** mode | Refer to Input **1** Mode instructions |
| **40331-40332** | **0330-0331** | Input **5** debounce time | Refer to Input **1** debounce instructions |
| **40333-40334** | **0332-0333** | Output **1** function | Range **0-14**, corresponding to: **0-** No function, **1 to 8-** Comparator **1**, comparator **2,** ... Comparator **8, 9-**stable, **10**- zero, **11-** net weight, **12-** printing, **13-**negative weight, **14-** communication heartbeat, |
| **40335-40336** | **0334-0335** | Output **1** mode | Range: **0-1**, 0**:** low level output, 1**:** high level output |
| **40337-40338** | **0336-0337** | Output **2** Function | Refer to Output **1** function |
| **40339-40340** | **0338-0339** | Output **2** Mode | Refer to Output **1** mode |
| **40341-40342** | **0340-0341** | Output **3** Function | Refer to Output **1** function |
| **40343-40344** | **0342-0343** | Output **3** mode | Refer to Output **1** mode |
| **40345-40346** | **03440345** | Output **4** Function | Refer to Output **1** function |
| **40347-40348** | **0346-0347** | Output **4** Mode | Refer to Output **1** mode |
| **40349-40350** | **0348-0349** | Output **5** Function | Refer to Output **1** function |
| **40351-40352** | **0350-0351** | Output **5** Mode | Refer to Output **1** mode |
| **40353-40354** | **0352-0353** | Output **6** Function | Refer to Output **1** function |
| **40355-40356** | **0354-0355** | Reserve | |
| **40357-40358** | **0356-0357** | Output **7** function | Refer to Output **1** function |

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| **40359-40360** | **0358-0359** | Reserve | |
| **40361-40362** | **0360-0361** | Output **8** function | Refer to Output **1** function |
| **40363-40364** | **0362-0363** | Reserve | |
| **40365-40366** | **0364-0365** | Output **9** function | Refer to Output **1** function |
| **40367-40500** | **0366-0499** | Reserve | |
| **40501-40502** | **0500-0501** | Comparator **1**- Compare mode | Initial value: **1**- Weight less than or equal to;<br>In comparing modes: Parameter range: **0-6**, **0-**off, **1**- Weight less than or equal to, **2**- weight equal to, **3**- weight not equal to, **4**- weight greater than or equal to, **5**- weight between, **6**- weight not between |
| **40503-40504** | **0502-0503** | Comparator 1- Compare value **1** | Initial value: **0**;<br>In comparing mode: Compare value **1**, signed number, range **-999999-999999**. |
| **40505-40506** | **0504-0505** | Comparator **1**- Compare value **2** | Initial value: **0**;<br>In comparing mode: comparison value **2**, signed number, range **-999999-999999**, greater than the comparison value **1**; |
| **40507-40508** | **0506-0507** | Comparator **1**- effective mode | Initial value: **0-** Output immediately;<br>Range: **0-2**, corresponding to: **0-** immediate output, **1-** output after weight stabilization, **2-** delay mode; |
| **4050940510** | **05080509** | Comparator **1**- effective judge time | Minimum judge time for success, initial value: **1000ms**, range: **0-50000ms**; |
| **4051140512** | **05100511** | Comparator **1**- failure mode | Initial value: **0**- immediate output invalid, range: **0-2**, corresponding to: **0**- immediate invalid, **1**- invalid after weight stabilization, **2-** delay mode; |
| **40513-40514** | **0512-0513** | Comparator **1**- failure judge time | Minimum decision time for failure, initial value: **1000ms**, range **0-50000ms**; |
| **40515-40520** | **0514-0519** | reserve | |
| **40521-40540** | **0520-0539** | Comparator **2** parameters | Refer to Comparator **1** parameters |
| **40541-40560** | **0540-0559** | Comparator **3** parameters | |
| **40561-40580** | **0560-0579** | Comparator **4** parameters | |
| **40581-40600** | **0580-0599** | Comparator **5** parameters | |
| **40601-40620** | **0600-0619** | Comparator **6** parameters | |
| **40621-40640** | **0620-0639** | Comparator **7** parameters | |
| **40641-40660** | **0640-0659** | Comparator **8** parameters | |
| **40661 ~ 41004** | **0660 ~ 1003** | Reserve | |

**Static check weight parameter address**

| | | | | |
|---|---|---|---|---|
| **41005** | **1004** | Process status | Bit | Instructions |
| | | | **Bit0** | Lower limit |
| | | | **Bit1** | Qualified |
| | | | **Bit2** | Upper limit |
| | | | **Bit3** | Print |
| | | | **Bit4** | Zero Point Position |
| | | | **Bit5** | Accumulation |
| | | | **Bit6** | Target Accumulation completed |
| | | | **Bit7** | Target batches completed |
| **41006 ~ 41022** | **1005 ~ 1021** | Reserve | | |
| **41023** | **1022** | Clear tare threshold | Initial value: **9d**; Range: **1-20**; | |
| **41024 ~** | **1023 ~** | Reserve | | |

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| **41100** | **1099** | | |
| **41101 ~ 41102** | **1100 ~ 1101** | Tolerance types | Initial value: 0, range: 0-2<br>0- absolute value, 1- relative value, 2- percent |
| **41103 ~ 41104** | **1102 ~ 1103** | Automatic print switch | Initial value: 1, ranging from 0 to 1<br>0- Off, 1- On |
| **41105 ~ 41106** | **1104 ~ 1105** | Upper limit value | Initial value: 0, tolerance type =0, range 0-999999; Tolerance type =1, range: 0-999999; Tolerance type =2, range 0-99 |
| **41107 ~ 41108** | **1106 ~ 1107** | Target value | Initial value: 0, tolerance type =0, range 0-999999; Tolerance type =1, range: 0-999999; Tolerance type =2, range 0-99 |
| **41109 ~ 41110** | **1108 ~ 1109** | Lower limit value | Initial value: 0, tolerance type =0, range 0-999999; Tolerance type =1, range: 0-999999; Tolerance type =2, range 0-99 |
| **41111 ~ 41112** | **1110 ~ 1111** | reserve | |
| 41113 | 1112 | Last checked weight | Read only, update when the next weight check is complete |
| **41114** | **1113** | Reserve | |
| **41115** | **1114** | Current accumulated weight | Write 1 Clear the current cumulative weight and target accumulation |
| **41116 ~ 41118** | **1115 ~ 1117** | Reserve | |
| **41119 ~ 41120** | **1118 ~ 1119** | Total cumulative weight | Initial value: 0, range: 0-9999999, write 1 Clear total accumulated weight |
| **41121 ~ 41122** | **1120 ~ 1121** | Current cumulative batch | Write 1 clear the completion flags of the current and target cumulative batches |
| **41123 ~ 41124** | **1122 ~ 1123** | Target cumulative batch | Initial value: 0, range: 0-999999 |
| **41125 ~ 41126** | **1124 ~ 1125** | Total cumulative batch | Initial value: 0, range: 0-999999, write 1 Clear total cumulative weight |
| **41127 ~ 41128** | **1126 ~ 1127** | Times of weight-check history recorded | Range: 0-999999999 |
| **41129 ~ 48000** | **1128 ~ 7999** | Reserve | |
| **Communication parameter setting area, readable and writable** | | | |
| **48001** | **8000** | Serial port **1** Slave number | Slave number of serial port **0**; Range: **01-99** |
| **48002** | **8001** | Serial port **1** 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** | Serial port **1** Communication 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** | Serial port **1** Data format | Initial value: **1** (**8E1**);<br>Range: 0-8N1, 1-8E1, 2-8O1, 3-7E1, 4-7O1 |
| **48005** | **8004** | Serial **1** Double byte mode | Initial value :**0 (AB-CD)** Range: **0-ab-cd**, **1-CD-AB**. |
| **48006** | **8005** | Serial port **1** Continuous sending interval | Initial value: **20ms,** range:**0-1000ms** |
| **48007 ~ 48020** | **8006 ~ 48019** | reserve | |
| **48021** | **8020** | Serial port **2** Slave number | Refer to Serial Port **1** parameters |
| **48022** | **8021** | Serial port **2** baud rate | |
| **48023** | **8022** | Serial **2** | |

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|---|---|---|---|
| | | Communication protocol | |
| **48024** | **8023** | Serial port **2** data format | |
| **48025** | **8024** | Serial **2** Double byte mode | |
| **48026** | **8025** | Serial **2** Continuous send interval | |
| **48027** | **8026** | Serial port **3** Slave number | Refer to Serial Port **1** parameters |
| **48028** | **8027** | Serial port **3** baud rate | |
| **48029** | **8028** | Serial **3** Communication protocol | |
| **48030** | **8029** | Serial port **3** data format | |
| **48031** | **8030** | Serial **3** Double byte mode | |
| **48032** | **8031** | Serial **3** Continuous send interval | |
| **48033 ~ 48121** | **8032 ~ 8122** | Reserve | |
| **48101** | **8100** | Network port communication mode | 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** | Network port double-byte mode | For standard network ports, can set **0-AB-CD** or **1-CD-AB**<br>When **Ethernet/IP** or **Profinet** is selected, this parameter cannot be set |
| **48103** | **8102** | Network port sending interval | This parameter can be used to set the interval for continuous transmission in other communication formats except **Modbus/TCP**. Initial value: **20ms**, the value ranges from **0** to **1000ms** |
| **48104 ~ 48107** | **8103 ~ 8106** | Local IP segment **1**~ Segment **4** | Initial value: **192.168.0.100,** in order of the first to fourth part IP |
| **48108 ~ 48111** | **8107 ~ 8110** | Reserve | |
| **48112** | **8111** | Local port number | Initial value: **0**, range: **0-65535**, network communication port number Settings |
| **48113 ~ 48150** | **8112 ~ 8149** | Reserve | |
| **48151** | **8150** | Analog output mode | 0:4-20mA; 1:0-10V**; 2**: user voltage; 3: user current |
| **48152** | **8151** | Minimum analog output | Range **0-10000** or **0-24000**, default **0**. If not in user mode, the read is all **0**, and the write is invalid |
| **48153** | **8152** | Zero point analog output | Range **0-10000** or **0-24000**, default **0**. If not in user mode, the read is all **0**, and the write is invalid |
| **48154** | **8153** | Full capacity analog output | Range **0-10000** or **0-24000**, default **0**. If not in user mode, the read is all **0**, and the write is invalid |
| **48155** | **8154** | Maximum analog output | Range **0-10000** or **0-24000**, default **0**. If not in user mode, the read is all **0**, and the write is invalid |
| **48156** | **8155** | Analog assocaited variables | **0**: indicates the weight, **1**: indicates the net weight, **2**: indicates the gross weight |
| **48157 ~ 48200** | **8156 ~ 8199** | Reserve | |
| **Print parameter setting area, readable-writable** | | | |
| **48201** | **8200** | Number of lines of header information | Range: **0-4**, select how many header lines to use |

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| **48202** | **8201** | Number of lines of tail information | Range: **0-4**, select how many ending 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**. Display weight. Range: **0-6**, optional: **0**-display weight, **1**-gross weight, **2**-net weight, **3**-Reserved, **4**-net weight + tare weight (two lines), **5**-Reserved, **6**-all information (gross weight + net weight) |
| **48205** | **8204** | Print language | **0**: English **1**: Chinese |
| **48206** | **8205** | Information line selection | The value ranges: **1-8**, which corresponds to header **1-4** and tail **1-4**.<br>**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 of **0-9**, **a-z**, **A-Z**, 'space', and '-' are supported |
| **48223 ~ 48300** | **8222 ~ 8299** | Reserve | |
| **I/O test parameters, readable-writable** | | | |
| **48301** | **8300** | **I/O** test mode | Parameter range: **0-1**, 0**:** exit I/O test mode, 1: enter serial port I/O test mode, after the test must be closed, the instrument can enter the normal state. |
| **48302** | **8301** | Input **1** test | Read **0** means no input, read **1** means no input. Writing any value is invalid and only works in IO test mode. |
| **48303** | **8302** | Input **2** Test | |
| **48304** | **8303** | Input **3** Test | |
| **48305** | **8304** | Input **4** Test | |
| **48306** | **8305** | Input **5** Test | |
| **48307 ~ 48350** | **8306 ~ 8349** | Reserved address | |
| **48351** | **8350** | Output **1** Test | Range: **0-1**, write: **0**: disable output, **1**: enable output (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 **6** Tests | |
| **48357** | **8356** | Output **7** Test | |
| **48358** | **8357** | Output **8** Test | |
| **48359** | **8358** | Output **9** Test | |
| **48360 ~ 48400** | **8359 ~ 8399** | Reserve | |
| **Analog calibration area address, readable and writable** | | | |
| **48401** | **8400** | Enter/exit analog calibration | Range: **0-2**, write: **0**, exit the remote analog calibration state; **1**: remote current calibration; **2**: remote voltage calibration. Remote Edit **(584x)** is not available until turned on. |
| **48402** | **8401** | Current calibration point **1** digital code | Range: **0-65535**, write: The instrument outputs the current according to the write code. Available only in current calibration mode.<br>Range: **0-24000**, write the measured current value, complete the current calibration of the corresponding point. Available only in current calibration mode. |
| **48403** | **8402** | Current calibration point **1** current value | |
| **48404** | **8403** | Current calibration point **2** digital code | |
| **48405** | **8404** | Current calibration point **2** current value | |
| **48406** | **8405** | Current calibration point **3** digital code | |
| **48407** | **8406** | Current calibration point **3** current value | |

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| **48408** | **8407** | Current calibration point **4** digital code | |
| **48409** | **8408** | Current calibration point **4** current value | |
| **48410** | **8409** | Current calibration point **5** digital code | |
| **48411** | **8410** | Current calibration point **5** current value | |
| **48412** | **8411** | Voltage calibration point **1** digital code | Range: **0-65535**, write: The instrument output voltage according to the write code. Available in voltage calibration mode only.<br>Range: **0-10000**, write the measured voltage value, complete the voltage calibration of the corresponding point. Available only in voltage calibration mode. |
| **48413** | **8412** | Voltage calibration point **1** Voltage value | |
| **48414** | **8413** | Voltage calibration point **2** digital code | |
| **48415** | **8414** | Voltage calibration point **2** voltage value | |
| **48416** | **8415** | Voltage calibration point **3** digital code | |
| **48417** | **8416** | Voltage calibration point **3** Voltage value | |
| **48418** | **8417** | Voltage calibration point **4** digital code | |
| **48419** | **8418** | Voltage calibration point **4** voltage value | |
| **48420** | **8419** | Voltage calibration point **5** digital code | |
| **48421** | **8420** | Voltage calibration point **5** voltage value | |
| **48422 ~ 48600** | **8421 ~ 8599** | Reserve | |
| **Function operation class address area (corresponding to coil function), readable-writable** | | | |
| **48601** | **8600** | Zero | Write **1** Perform the operation<br>The Read are all zero |
| **48602** | **8601** | Tare | |
| **48603** | **8602** | Clear tare | |
| **48604** | **8603** | Gross/net weight switch | |
| **48605** | **8604** | Calibrate zero | |
| **48606** | **8605** | Print | |
| **48607** | **8606** | Print feed paper | |
| **48608 ~ 48900** | **8607 ~ 8899** | Reserve | |
| **48901** | **8900** | Reset all parameters | Write **1** Perform the corresponding reset operation<br>Read are all zero |
| **48902** | **8901** | Reset all parameters (except calibration) | |
| **48903** | **8902** | Reset calibration parameters | |
| **48904** | **8903** | Reset basic parameters | |
| **48905** | **8904** | Reset IO definition | |
| **48906** | **8905** | Reset analog calibration | |
| **48907** | **8906** | Reset application parameters | |
| **48908** | **8907** | Reset communication parameters | |
| **48908 ~ 49314** | **8907 ~ 9313** | Reserve | |
| **49315 ~** | **9314 ~ 9315** | Upper limit set value | Set the upper limit net weight |

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| **49316** | | | |
| **49317 ~ 49318** | **9316 ~ 9317** | Lower limit set value | Set the lower limit net weight |
| **49319 ~ 49320** | **9318 ~ 9319** | Upper/Middle/Lower limit flag bits (Read only) | D03-D15: Reserved |
| | | | D02: Lower limit mark |
| | | | D01: Lower limit mark |
| | | | D00: Upper limit mark |
| **49321** | **9320** | Year (Read only) | Range: 0-99 |
| **49322** | **9321** | Month (Read only) | Range: 0-12 |
| **49323** | **9322** | Day (Read only) | Range: 0-31 |
| **49324** | **9323** | Hour (Read only) | Range: 0-23 |
| **49325** | **9324** | Score (Read only) | Range: 0-59 |
| **49326** | **9325** | Seconds (Read only) | Range: 0-59 |
| **49327 ~ 410000** | **9326-9999** | Reserve | |

| **Instrument System information area, read-only area** | | | |
|---|---|---|---|
| **410001** | **10000** | Software Version (high word) | |
| **410002** | **10001** | Software version (low word) | If read is **10000**, **version 01.00.00** |
| **410003** | **10002** | Compile time (years) | |
| **410004** | **10003** | Compile time (month day) | |
| **410005-410017** | **10004-10016** | Instrument serial number **13** characters | |
| **410018-410029** | **10017-10028** | Instrument code **12** characters | |
| **410030 ~ 410200** | **10029 ~ 10199** | Reserve | |

| **Coil address** | | | |
|---|---|---|---|
| **0x0001** | **0000** | Zero | The contents are readable and writable coils<br>Write: FF00H = On<br>0000H = Off<br>Read: 0001H = On<br>0000H = Off |
| **0x0002** | **0001** | Tare | |
| **0x0003** | **0002** | Clear tare | |
| **0x0004** | **0003** | Gross/net weight switch | |
| **0x0005** | **0004** | Quick Calibrate Zero | |
| **0x0006** | **0005** | Print | |
| **0x0007~0x0300** | **0006 ~ 0299** | Reserve | |
| **0x0301** | **0300** | Reset all parameters | This area is write only<br>Write: FF00H = Perform reset operation<br>Read: 0000H |
| **0x0302** | **0301** | Reset all parameters (except calibration) | |
| **0x0303** | **0302** | Reset calibration parameters | |
| **0x0304** | **0303** | Reset Basic Parameters | |
| **0x0305** | **0304** | Reset IO definition | |
| **0x0306** | **0305** | Reset analog parameters | |
| **0x0307** | **0306** | Reset application parameters | |
| **0x0308** | **0307** | Reset Communication Parameters | |
| **0x0309~0x0400** | **0308-0399** | Reserve | |
| **0x0401** | **0400** | Input **1** Status | Read only area<br>Read Return each input port status bit<br>**0**: invalid; **1** valid |
| **0x0402** | **0401** | Input **2** Status | |
| **0x0403** | **0402** | Input **3** Status | |
| **0x0404** | **0403** | Input **4** Status | |

| | | | |
|---|---|---|---|
| **0x0405** | **0404** | Input **5** Status | |
| **0x0406~0x0450** | **0405 ~ 0449** | Reserve | |
| **0x0451** | **0450** | Output **1** status | Read only area<br>Read Return each output status bit<br>**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** | Output **6** status | |
| **0x0457** | **0456** | Output **7** Status | |
| **0x0458** | **0457** | Output **8** status | |
| **0x0459** | **0458** | Output **9** status | |
| **0x0460~0x0800** | **0459 ~ 0799** | Reserve | |

### 3.11.2 Cont-A (continuous send -CB920)

**Gmc-p7 (F8)** When the serial port protocol is **Cont-A (**CB920**)**, data is continuously sent in the following format.

| Status | **,** | Conte nt | **0/1** | +/- | Display Values | Units | **CR** | **LF** |
|---|---|---|---|---|---|---|---|---|
| 2-bit | **2**C | **2** bits | **30/31** | **2B/2D** | 7-bit | **2** bits | **0D** | **0A** |

Note:

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

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

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

Units -- **2** bits, 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**

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

### 3.11.3 Cont-B (Continuous transmission -tt)

**GMC-P7(F8)** When the serial port protocol is set to "**Cont-B (**tt**)**", the collected data will be automatically sent to the PC

| **STX** | Status **1** | Status **2** | Status **3** | Display Values | Loadcell voltage value | **CR** | Check sum |
|---|---|---|---|---|---|---|---|
| **02H** | **1** bit | **1** bit | **20H** | **6** bits | **6** bits | **0D** | **1** bit |

Status **1**:

| **bit7** | **bit6** | | **bit5** | **bit4** | | **bit3** | **bit2** | | **bit1** | **bit0** |
|---|---|---|---|---|---|---|---|---|---|---|
| Fixed **0** | **/h** | **1** | **0** | **t** | **0** | **0** | **0** | **0** | **1** | **0** |
| | **/m** | **1** | **1** | **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** |
| | Flow units | | | Units of weight | | | Decimal point | | | |

Status **2**:

| **bit7** | **bit6** | **bit5** | **bit4** | **bit3** | **bit2** | **bit1** | **bit0** |
|---|---|---|---|---|---|---|---|
| Reserve | Reserve | Reserve | **1**- Flow | **1**- Unstable | **1**- Overflow | **1**- negative | **1**- Net weight |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fixed **0** | Fixed **1** | Fixed **1** | **0**-weight | **0**-Stable | **0**-Normal | **0**- positive | **0**- Gross weight |

### 3.11.4 r-Cont

**Gmc-p7 (F8)** Serial port protocol is selected as "**r-Cont**", without sending any command to the weighing controller, the collected data is automatically sent to the PC in the following format.

| **STX** | Scale No. | Fixed | Status 1 | State **2** | Display Values | **CRC** | **CR** | **LF** |
|---|---|---|---|---|---|---|---|---|
| **02H** | 2-bit | **31H** | **1** bit | **1** bit | **6** bits | **2 bits** | **0D** | **0A** |

Note:

Scale number - **2** digits, ranging from 01 to **99**

Status **1** -- **1** bit

| **bit7** | **bit6** | | **bit5** | **bit4** | | **bit3** | **bit2** | | **bit1** | **bit0** |
|---|---|---|---|---|---|---|---|---|---|---|
| Fixed **0** | **/h** | **1** | **0** | **t** | **0** | **0** | **0** | **0** | **0** | **0** |
| | **/m** | **1** | **1** | **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** |
| | Flow units | | | Units of weight | | | Decimal point | | | |

State **2-1** bit

| **D6** | **D5** | **D4** | **D3** | **D2** | **D1** | **D0** |
|---|---|---|---|---|---|---|
| Undefined | undefined | Gross/net weight | positive /minus | Zero | Overflow | stable |
| Fixed :**1** | Fixed :**0** | Gross weight **0**; Net weight **1**; | **0**: positive **1**: negative | **0**: Non-zero **1**: zero | **0**: Normal **1**: Overflow | **0**: unstable **1**: Stable |

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

**CRC** - **2** digits, 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** |
|---|---|---|---|---|---|---|---|---|---|---|

Add the sum of **02** to **4B**: **187 (Hex)** and convert to decimal **391.** It can be calculated that the check codes for this data frame are **39 and 31.**

For example:

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

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

### 3.11.5 rE-Cont

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

Return data frame format description:

| Status | , | Content | , | +/- | Display Values | Units | **CR** | **LF** |
|---|---|---|---|---|---|---|---|---|
| **2-bit** | **2C** | **2 bits** | **2C** | **2B/2D** | **7-bit** | **2 bits** | **0D** | **0A** |

Among them:

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

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

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

Unit -- **2** digits, such as **kg: 6BH 67H; g:20H 67H; t:20H 74H,** etc

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

can see that the current status is stable, the data value is positive, and the displayed value is

**808t**

### 3.11.6YH (Protocol)

When the GMC-P7 (F8) communication protocol is selected as "**YH**", transmit data 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.

### 3.11.7 PROFINET Communication

The **GMC-P7(F8)** 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.

View and set Instrument **IP** address in the "communication Settings" - "network port" parameter; Set **MAC** address in【 System Maintenance 】-【 System Information 】parameter.

**Gmc-p7 (F8)** provides multi-byte **IO** through which the master station can read and control the status of the weigh display. In PN communication mode, two sets of IO module addresses are provided: Standard version and simple version. It can be selected from the GSD file type of 【 Communication Settings 】-【 Network port 】.

### 3.11.7.1 I/O Module Address of the Standard Version

**Module 1: Weight and status parameters (read register)**

| Offset | Parameter name | Data type | Parameter Description |
|---|---|---|---|
| **0** | Display weight | **DInt** | Weight currently displayed, integer |
| **4** | Weight status flag bit | **Word** | **D13-D15** Reserved |
| | | | **D12**: Bipolar, (flag bits are valid when bipolar is selected) |
| | | | **D11**: Reserved |
| | | | **D10**: **ADC** failure, (**ADC** initialization failure or sampling interruption time longer than expected) |
| | | | **D9**: Currently displayed net weight, (distinguish which weight is currently displayed) |
| | | | **D8**: millivolt stable, (millivolt stable sign during calibration) |
| | | | **D7**: Loadcell overflow negatively, lower than the allowable range of loadcell voltage |
| | | | **D6**: Loadcell overflow positively, beyond the allowable range of loadcell voltage |
| | | | **D5**: Weight overflow negatively, weight less than "-(Max range +**9d**)" |
| | | | **D4**: Weight overflow positively, weight greater than "Max range +**9d**" |
| | | | **D3**: Overflow status, (weight abnormal or loadcell failure) |
| | | | **D2**: Display weight is negative, (Display weight is negative) |
| | | | **D1**: Zero, (weight in the range of 0+/- quarter **d)** |
| | | | **D0**: Stable |
| **6** | Error code **1** | **Word** | **D13-D15** Reserved |
| | | | **D12**: Perform Remote calibration when remote calibration is disabled |
| | | | **D11**: In hardware protection status when calibrating |
| | | | **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**: Loadcell overflow positively during weight calibration |
| | | | **D04**: Loadcell overflow negatively during weight calibration |
| | | | **D03**: Weight calibration is unstable |
| | | | **D02**: Loadcell overflow positively during zero calibration |
| | | | **D01**: Loadcell overflow negatively during zero calibration |
| | | | **D00**: Zero calibration is unstable |
| **8** | Error code **2** | **Word** | D14-D15 Reserved |
| | | | **D13**: Remote tare operation Allow switch is not turned on during remote tare operation |

| | | | |
|---|---|---|---|
| | | | **D12**: The tare is not allowed in the net weight state |
| | | | **D11**: The weight is negative when clearing tare |
| | | | **D10**: The loadcell overflow positively when taring |
| | | | **D09**: Loadcell overflow negatively 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 overflow positively when zeroing |
| | | | **D04**: The loadcell overflow negatively when zeroing |
| | | | **D03**: Unstable when zeroing |
| | | | **D02**: Zero out of range |
| | | | **D01**: Zero is unstable during power-on |
| | | | **D00**: The power-on zero is out of range |
| **10** | Process status flag bit | **Word** | **D13-D15** Reserved |
| | | | **D11**: Current calibration |
| | | | **D10**: Voltage calibration |
| | | | **D9**: **IO** test status |
| | | | **D8**: Printing, (valid when the instrument is performing a printing operation) |
| | | | **D7**: Comparator **8** reaches comparison condition,(comparator **8** reached the comparison condition is valid) |
| | | | **D6**: Comparator **7** reaches comparison condition,(comparator **7** achieved the comparison condition is valid) |
| | | | **D5**: Comparator **6** reaches comparison condition,(comparator **6** achieved the comparison condition is valid) |
| | | | **D4**: Comparator **5** reaches comparison condition,(comparator **5** achieved the comparison condition is valid) |
| | | | **D3**: Comparator **4** reaches comparison condition,(comparator **4** achieved the comparison condition is valid) |
| | | | **D2**: Comparator **3** reaches comparison condition,(comparator **3** achieved comparison condition is valid) |
| | | | **D1**: Comparator **2** reaches comparison condition,(comparator **2** is valid if the comparison condition is valid) |
| | | | **D0**: comparator **1** reaches comparison condition,(comparator **1** is valid if the comparison condition is valid) |
| **12** | Gross weight | **DInt** | Gross weight value (signed integer) |
| **16** | Net weight | **DInt** | Net weight value (signed integer) |
| **20** | Tare | **DInt** | Tare value (signed integer) |
| **24** | Reserved | **DInt** | |
| **28** | Current weight | **Float** | Weight currently displayed, floating point type |
| **32** | Gross weight | **Float** | Gross weight value, floating point type |

| | | | |
|---|---|---|---|
| **36** | Net weight | **Float** | Net weight value, floating point type |
| **40** | Tare | **Float** | Tare value, floating point type |
| **44** | Reserved | **Float** | |
| **48** | **AD** internal Code after filtering | **DWord** | Internal code of the **ADC** after filtering, |
| **52** | Loadcell voltage value data | **DWord** | Signed numbers, integers, four decimal points |
| **56** | Relative zero voltage value data | **DWord** | Signed numbers, integers, four decimal points |
| **60** | Input status area | **Word** | **D5-D15** Reserved |
| | | | **D4**: Input **5** status |
| | | | **D3**: Input **4** status |
| | | | **D2**: Input **3** status |
| | | | **D1**: Input **2** status |
| | | | **D0**: Input **1** status |
| **62** | Output status area | **Word** | **D9-D15** Reserved |
| | | | **D8**: Output **9** status |
| | | | **D7**: Output **8** status |
| | | | **D6**: Output **7** status |
| | | | **D5**: Output **6** status |
| | | | **D4**: Output **5** status |
| | | | **D3**: Output **4** status |
| | | | **D2**: Output **3** status |
| | | | **D1**: Output **2** status |
| | | | **D0**: Output **1** status |
| **64** | Communication heartbeat | **DWord** | The value of the PN's communication heartbeat will also be converted between 0 and 1 at a frequency of 1HZ after the connection is established |

**Module 2: Calibrating parameters (Readable/Writable register)**

| Offset | Parameter name | Data type | Parameter description | |
|---|---|---|---|---|
| **0** | Automatically calibrate zero point | **DWord** | Current loadcell voltage | Read register |
| **4** | Gain calibration point **1** | **DWord** | Relative voltage value **1** (Loacell input - zero point voltage) | |
| **8** | Gain calibration point **2** | **DWord** | Relative voltage value **2** (loadcell input - calibration point **1** voltage) | |
| **12** | Gain calibration 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 calibrate zero point | **DWord** | Current loadcell voltage (write 1 to the communication address, perform automatic zero calibration) | Write register (write value to address to |

| | | | | |
|---|---|---|---|---|
| **4** | Gain calibration point **1** | **DWord** | Input the gain weight value **1** | complete calibration) |
| **8** | Gain calibration point **2** | **DWord** | Input the gain weight value **2** | |
| **12** | Gain calibration point **3** | **DWord** | Input the gain weight value **3** | |
| **16** | Gain calibration point **4** | **DWord** | Input the gain weight value **4** | |
| **20** | Gain calibration point **5** | **DWord** | Input the gain weight value **5** | |
| **24** | Function status | **DWord** | **D7-D31** reserved | |
| | | | **D6**: Print feed paper | |
| | | | **D5**: Print | |
| | | | **D4**: Calibrate zero | |
| | | | **D3**: Gross/net weight switch | |
| | | | **D2**: Clearing tare | |
| | | | **D1**: Clear tare | |
| | | | **D0**: Zero | |

**Module 3: Parameter modification (Readable/writable register)**

| | | | | |
|---|---|---|---|---|
| **0** | Read out value | **DWord** | The value obtained by writing the address to be read | Read register |
| **4** | Write status | **Word** | Write data return status 0: No error. 1: register address illegal. 2: parameter error | |
| **6** | Read status | **Word** | Read data return status 0: No error. 1: register address illegal. 2: parameter error | |
| | | | | |
| **0** | The address of the value to be written | **DWord** | Address of the value to be written (note that the address is not written if it changes) This parameter modifies the MODBUS address range supported by the interface module is limited to 100-660. | Write register |
| **4** | The value to write | **DWord** | The value to write (note that it will only be written to the meter if the value changes) | |
| **8** | The address to read | **DWord** | Address to read (Note that you cannot read a two-word address, write an odd address) This parameter modifies the MODBUS address range supported by the interface module is limited to 0-660. | |

3.11.7.2 I/O Module Simple Version Address

**PN Loop parameter list**

| Offset | Parameter name | Data type | Parameter Description |
|---|---|---|---|
| **Read register (I address)** | | | |
| **0** | Display weight | **Dword** | Weight currently displayed, integer |
| **4** | Weight status flag bit | **Word** | **D13-D15** Reserved |
| | | | **D12**: Bipolar, (flag bits are valid when bipolar is selected) |
| | | | **D11**: Reserved |
| | | | **D10**: **ADC** failure, (**ADC** initialization failure or sampling interruption longer than expected) |
| | | | **D9**: Currently display net weight, (distinguish which weight is currently displayed) |

| | | | |
|---|---|---|---|
| | | | **D8**: Millivolt stable, (Millivolt stable sign when calibrating) |
| | | | **D7**: Loadcell overflow negatively, lower than the allowable range of loadcell voltage |
| | | | **D6**: Loadcell overflow positively, beyond the allowable range of loadcell voltage |
| | | | **D5**: Weight overflow negatively, weight less than "-(Max range +**9d**)" |
| | | | **D4**: Weight overflow positively, weight greater than "Max range +**9d**" |
| | | | **D3**: Overflow status, (abnormal weight or sensor) |
| | | | **D2**: Shows weight minus sign, (shows weight negative) |
| | | | **D1**: Zero, (weight in **the** range of 0+/- quarter **d)** |
| | | | **D0**: Stable |
| **6** | Error code **2** | **Word** | **D14-D15** Reserved |
| | | | **D13**: Remote tare operation Allow switch is not turned on during remote tare operation |
| | | | **D12**: The tare is not allowed in the net weight state |
| | | | **D11**: The weight is negative when clearing tare |
| | | | **D10**: The loadcell overflow positively during taring |
| | | | **D09**: The loadcell overflow negatively during 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 overflow positively when zeroing |
| | | | **D04**: The loadcell overflow negatively when zeroing |
| | | | **D03**: Unstable when zeroing |
| | | | **D02**: Zero out of range |
| | | | **D01**: The zero is unstable during power-on |
| | | | **D00**: The power-on zero is out of range |
| **8** | Loadcell voltage value | **DWord** | Signed numbers, integers, four decimal points |
| **12** | Read value | **DWord** | The value obtained by writing the address to be read |
| **16** | The state of the write | **Word** | Write data returned status. 0: No error 1: register address illegal. 2: parameter error |
| **18** | Communication heartbeat | **Word** | The value of the PN'**s** communication heartbeat will also be converted between **0** and **1** at a frequency of 1 Hz after the connection is established |
| **Write register (Q address)** | | | |
| **0** | Function operation | **DWord** | **D7-D31** reserved |
| | | | **D6**: Print feed paper |
| | | | **D5**: Print |
| | | | **D4**: Calibrate zero |
| | | | **D3**: Gross/net weight switch |
| | | | **D2**: Clearing tare |
| | | | **D1**: Tare |
| | | | **D0**: Zero |
| **4** | The address of the value to be written | **DWord** | Address of the value to be written (note that the address is not written if it changes) This parameter modifies the MODBUS address range supported by |

| | | | |
|---|---|---|---|
| | | | the interface module is limited to 100-660. |
| **8** | The value to write | **DWord** | The value to write (note that it will only be written to the instrument if the value changes) |
| **12** | The address to read | **DWord** | Address to read (Note that you cannot read a two-word address, write an odd address) This parameter modifies the MODBUS address range supported by the interface module is limited to 0-660. |

3.11.7.3 Device Description file GSD

The device description file and connection method of **GMC-P7 (F8)** can be **downloaded** from the website of Shenzhen Geman Technology Co., LTD. **(www.szgmt.com)**.

### 3.11.8 EtherNet-IP Communication

The IP address of the instrument is set and viewed in the parameters of "Communication Settings" - "network port". After setting, it takes effect after being powered on again. The MAC address can be viewed in 【System Maintenance】-【System Information】. GMc-p7 (F8) provides two forms to describe the file; The standard version provides 100-byte INPUT and 40-byte OUTPUT; The simple version provides 20-byte INPUT and 16-byte OUTPUT. The master station can read and control the state of the weigh display through these I/Os.

3.11.8.1 Standard Version I/O module address

**Module 1: Weight and status parameters (read register)**

| Offset | Parameter name | Data type | Parameter Description |
|---|---|---|---|
| **0** | Displayed weight | **DInt** | Weight currently displayed, integer |
| **2** | Weight status flag bit | **Word** | **D13-D15** Reserved |
| | | | **D12**: Bipolar, (flag bits are valid when bipolar is selected) |
| | | | **D11**: Reserved |
| | | | **D10**: **ADC** failure, (**ADC** initialization failure or sampling interruption time longer than expected) |
| | | | **D9**: Currently displayed net weight, (distinguish which weight is currently displayed) |
| | | | **D8**: millivolt stable, (millivolt stable sign when calibrating) |
| | | | **D7**: Loacell overflow negatively, lower than the allowable range of loadcell voltage |
| | | | **D6**: positive sensor overflow, beyond the allowable range of loadcell voltage |
| | | | **D5**: Weight overflow negatively, weight less than "-(Max range +**9d**)" |
| | | | **D4**: Weight overflow positively, weight greater than "Max range +**9d**" |
| | | | **D3**: Overflow status, (weight abnormal or loadcell failure) |
| | | | **D2**: Displayed weight is negative, (Displayed weight is negative) |
| | | | **D1**: Zero, (weight in the range of 0+/- quarter d**)** |
| | | | **D0**: Stable |

| | | | |
|---|---|---|---|
| **3** | Error code **1** | **Word** | **D13-D15** Reserved |
| | | | **D12**: Perform remote calibration when remote calibration is disabled |
| | | | **D11**: In hardware protection during 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 overflow positively during weight calibration |
| | | | **D04**: The Loadcell overflow negatively during weight calibration |
| | | | **D03**: Unstable during weight calibration |
| | | | **D02**: Loadcell overflow positively during zero calibration |
| | | | **D01**: Loadcell overflow negatively during zero calibration |
| | | | **D00**: Unstable during zero calibration |
| **4** | Error code **2** | **Word** | **D14-D15** Reserved |
| | | | **D13**: Remote tare operation Allow switch is not turned on during remote tare operation |
| | | | **D12**: The tare operation is not allowed in the net weight state |
| | | | **D11**: The weight is negative when clearing the tare |
| | | | **D10**: The loadcell overflow positively when clearing the tare |
| | | | **D09**: loadcell overflow negatively when taring |
| | | | **D08**: Unstable when taring |
| | | | **D07**: Does not allow zero in the net weight status |
| | | | **D06**: The remote zero switch is not enabled during remote zero operation |
| | | | **D05**: The loadcell overflow positively when zeroing |
| | | | **D04**: The Loadcell overflow negatively when zeroing |
| | | | **D03**: Unstable when zeroing |
| | | | **D02**: Zero out of range |
| | | | **D01**: The zero is unstable during power-on |
| | | | **D00**: The power-on zero is out of range |
| **5** | Process status flag bit | **Word** | **D13-D15** Reserved |
| | | | **D11**: In Current calibration |
| | | | **D10**: In Voltage calibration |
| | | | **D9**: IO test status |
| | | | **D8**: Printing, (valid when the instrument is performing a printing operation) |
| | | | **D7**: Comparator **8** reaches comparison condition, (comparator **8** reaches comparison condition is valid) |
| | | | **D6**: Comparator **7** reaches comparison condition, (comparator **7** reaches the comparison condition is valid) |

| | | | |
|---|---|---|---|
| | | | **D5**: Comparator **6** reaches comparison condition, (comparator **6** reaches the comparison condition is valid) |
| | | | **D4**: Comparator **5** reaches comparison condition, (comparator **5** reaches the comparison condition is valid) |
| | | | **D3**: Comparator **4** reaches comparison condition, (comparator **4** reaches the comparison condition is valid) |
| | | | **D2**: Comparator **3** reaches comparison condition, (comparator **3** reaches the comparison condition is valid) |
| | | | **D1**: Comparator **2** reaches comparison condition, (comparator **2** reaches the comparison condition is valid) |
| | | | **D0**: comparator **1** reaches comparison condition, (comparator **1** reaches the comparison condition is valid) |
| **6** | Gross weight | **DInt** | Gross weight value (signed integer) |
| **8** | Net weight | **DInt** | Net weight value (signed integer) |
| **10** | Tare | **DInt** | Tare value (signed integer) |
| **12** | Reserved | **DInt** | Reserve |
| **14** | Current weight | **Float** | Weight currently displayed, floating point type |
| **16** | Gross weight | **Float** | Gross weight value, floating point type |
| **18** | Net weight | **Float** | Net weight value, floating point type |
| **20** | Tare | **Float** | Tare value, floating point type |
| **22** | Reserved | **Float** | Reserved |
| **24** | Code internal **AD** after filtering | **DWord** | Internal code of the **ADC** after filtering, |
| **26** | Loadcell voltage value | **DWord** | Signed numbers, integers, four decimal points |
| **28** | Relative zero voltage value | **DWord** | Signed numbers, integers, four decimal points |
| **30** | Input the status area | **Word** | **D5-D15** Reserved |
| | | | **D4**: Input status **5** (extended input **2**) |
| | | | **D3**: Input status **4** (extended input **1**) |
| | | | **D2**: Input status **3** |
| | | | **D1**: Input status **2** |
| | | | **D0**: Input status **1** |
| **31** | Output status area | **Word** | **D9-D15** Reserved |
| | | | **D8**: Output status **9** (extended output **4**) |
| | | | **D7**: Output status **8** (extended output **3**) |
| | | | **D6**: Output status **7** (extended output **2**) |
| | | | **D5**: Output status **6** (extended output **1**) |
| | | | **D4**: Output status **5** |
| | | | **D3**: Output status **4** |
| | | | **D2**: Output status **3** |
| | | | **D1**: Output status **2** |
| | | | **D0**: Output status **1** |
| **32** | Communication heartbeat | **DWord** | After the communication indicator is set to the network port, the communication indicator flashes at **1HZ**, and the communication heartbeat switches between **0** and **1** at 1 Hz |
| **34** | Automatic calibrate zero | **DWord** | Current loacell voltage |

| | | | | |
|---|---|---|---|---|
| **36** | Gain calibration point **1** | **DWord** | Relative voltage value **1** (loadcell input - zero point voltage) | |
| **38** | Gain calibration point **2** | **DWord** | Relative voltage value **2** (loadcell input - calibration point **1** voltage) | |
| **40** | Gain calibration point **3** | **DWord** | Relative voltage value **3** (loadcell input - calibration point **2** voltage) | |
| **42** | Gain calibration point **4** | **DWord** | Relative voltage value **4** (loadcell input - calibration point **3** voltage) | |
| **44** | Gain calibration point **5** | **DWord** | Relative voltage value **5** (loadcell input - calibration point **4** voltage) | |
| **46** | Read out value | **DWord** | The value obtained by writing the address to be read | |
| **48** | Write status | **Word** | Write data Return status 0: No error. 1: register address illegal. 2: parameter error. | |
| **49** | Read status | **Word** | Read data return status 0: No error. 1: register address illegal. 2: parameter error | |
| | | | | |
| **0** | Automatically calibrate zero | **DWord** | Current loadcell voltage (write 1 to the communication address, perform automatic zero calibration) | Write value to the address to complete the calibration |
| **2** | Gain calibration point **1** | **DWord** | Input gain weight value **1** | |
| **4** | Gain calibration point **2** | **DWord** | Input the gain weight value **2** | |
| **6** | Gain calibration point **3** | **DWord** | Input gain weight value **3** | |
| **8** | Gain calibration point **4** | **DWord** | Input the gain weight value **4** | |
| **10** | Gain calibration point **5** | **DWord** | Input gain weight value **5** | |
| **12** | Function operation | **DWord** | **D7-D31** reserved | |
| | | | **D6**: Print feed paper | |
| | | | **D5**: Print | |
| | | | **D4**: Calibrate zero | |
| | | | **D3**: Gross/net weight switch | |
| | | | **D2**: Clear tare | |
| | | | **D1**: Tare | |
| | | | **D0**: Zero | |
| **14** | The address of the value to be written | **DWord** | The address of the value to write (note that the address will not be written if it changes)<br>This parameter modifies the range of **MODBUS addresses** supported by the interface module to be limited to **100-660**. | |
| **16** | The value to write | **DWord** | The value to write (note that it will only be written to the instrument if the value changes) | |
| **18** | The address to read | **DWord** | Address to read (note that when reading a two-byte address, you can't write an odd-byte address)<br>This parameter modifies the **MODBUS** address range supported by the interface module is limited to **0-660**. | |

3.11.8.2 Simple Version Parameter Address

**EIP loop parameter list**

| Offset | Parameter name | Data type | Parameter Description |
|---|---|---|---|
| **0** | Current displayed weight | **DWord** | Currently displayed weight, integer |

| | | | |
|---|---|---|---|
| **2** | Weight status flag bit | **Word** | **D13-D15** Reserved<br>**D12**: Bipolar, (flag bits are valid when bipolar is selected)<br>**D11**: Reserved<br>**D10**: **ADC** failure, (**ADC** initialization failure or sampling interruption time longer than expected)<br>**D9**: Currently displayed net weight, (distinguish which weight is currently displayed)<br>**D8**: millivolt is stable, (calibration millivolt stable sign when calibrating)<br>**D7**: loadcell overflow negatively, lower than the allowable range of loadcell voltage<br>**D6**: loadcell overflow positively, beyond the allowable range of loadcell voltage<br>**D5**: Weight overflow negatively, weight less than "-(Max range +**9d**)"<br>**D4**: Weight overflow positively, weight greater than "Max range +**9d**"<br>**D3**: Overflow status, (weight abnormal or loadcell failure)<br>**D2**: Weight is negative<br>**D1**: zero, (weight in the range of 0+/- quarter **d)**<br>**D0**: Stable |
| **3** | Error code **2** | **Word** | **D14-D15** Reserved<br>**D13**: Remote tare operation allow switch is not turned on during remote tare operation<br>**D12**: The tare operation is not allowed in the net weight state<br>**D11**: The weight is negative when taring<br>**D10**: The loadcell overflow positively when taring<br>**D09**: Loadcell overflow negatively when taring<br>**D08**: Unstable when taring<br>**D07**: The net weight status does not allow zero<br>**D06**: The remote zero switch is not enabled during remote zero<br>**D05**: The loadcell overflow positively when zeroing<br>**D04**: The loadcell overflow negatively when zeroing<br>**D03**: Unstable when zeroing<br>**D02**: Zero out of range<br>**D01**: Zero operation is unstable during power-on<br>**D00**: The power-on zero is out of range |
| **4** | loadcell voltage data | **DWord** | Signed numbers, integers, four decimal points |
| **6** | Read value | **DWord** | The value obtained by writing the address to be read |
| **8** | Write value | **Word** | Write data Return status 0: No error. 1: register address illegal. 2: parameter error. |
| **9** | Communication heartbeat | **Word** | The value of the PN's communication heartbeat After the connection is established, the value of the |

| | | | |
|---|---|---|---|
| | | | communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz |
| | | | |
| 0 | Function Operation | **DWord** | D7-D31 reserved<br>**D6**: Print feed paper 40<br>**D5**: Print 20<br>**D4**: Zero Calibration:10<br>**D3**: Gross net weight switch 8<br>**D2**: Clear tare 4<br>**D1**: Tare 2<br>**D0**: Zeroing 1 |
| **2** | The address of the value to be written | **DWord** | The address of the value to write (note that the address will not be written if it changes)<br>This parameter modifies the range of MODBUS addresses supported by the interface module to be limited to 100-660. |
| **4** | The value to write | **DWord** | The value to write (note that it will only be written to the instrument if the value changes) |
| **6** | The address to read | **DWord** | Address to read (note that when reading a two-byte address, you can't write an odd-numbered address)<br>This parameter modifies the MODBUS address range supported by the interface module is limited to 0-660. |

**EIP acyclic parameter list**

| Parameter names | Initial value | Parameter description |
|---|---|---|
| Trace zero range | **1** | **0-99d** |
| Stable range | **1** | **0-99d** |
| Zero range | **20%** | **1% - 99%.** |
| Digital filter parameters | **4** | **0-9** |
| Steady status filtering levels | **0** | **0-99** |
| Unit | **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<br>Range: **1**,2,**5,10,20,50,100,200,500** |
| Maximum range | **10000** | The maximum indicator value of the instrument, generally take the loadcell capacity. Range: minimum division *200000; When setting the over capacity (" data out of range ") prompt message, avoid to damage the loadcell by weighing overpressure. |

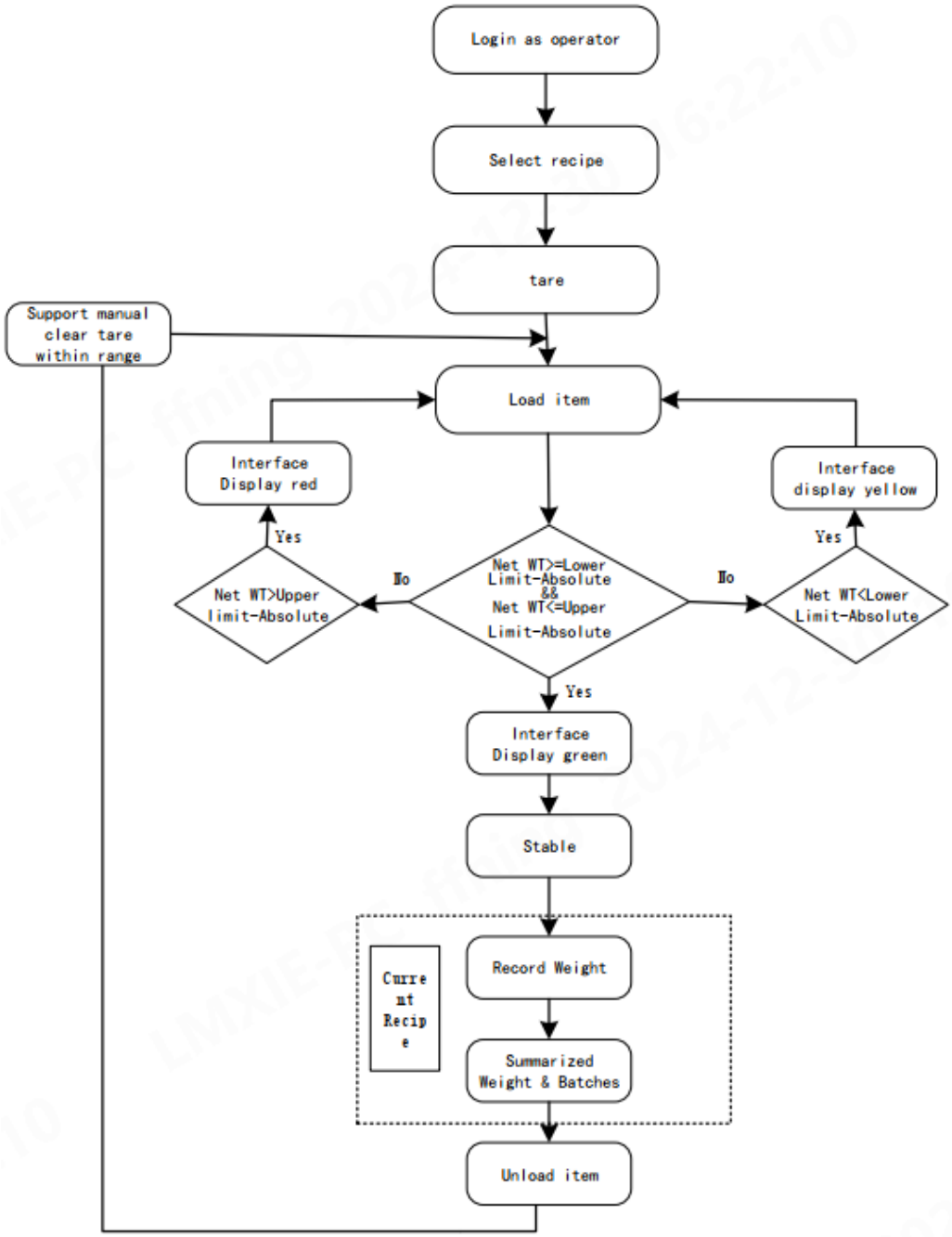
3.11.8.3 Device Description file EDS

The device description file and connection method **of GMC-P7 (F8)** can be downloaded from the website of Shenzhen General Measure Technology Co., LTD. (**www.szgmt.com**).

## 3.12 Description of static weighing process

For target weighing of certain target weight items, according to the setted upper and

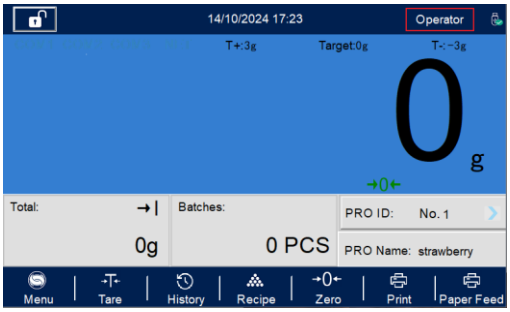
lower limit target value, load the items on the weighing platform, when reaching the set target qualified range, the main interface screen will give green prompt, otherwisw pop-up red prompt, Meanwhile when reaching the set target batches or target cumulative weight also pop up the interface to remind the current batches has been completed or the current cumulative has been completed.



# Charpter 4 Static weighing use process

## 4.1 User login

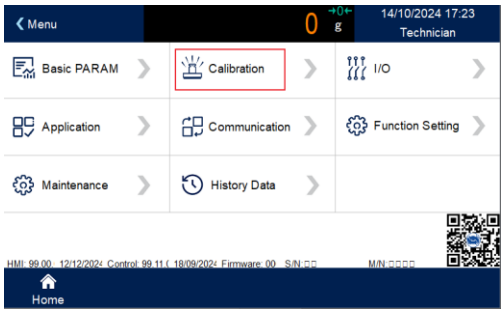
Click Operator, input password:0000, login as Technician

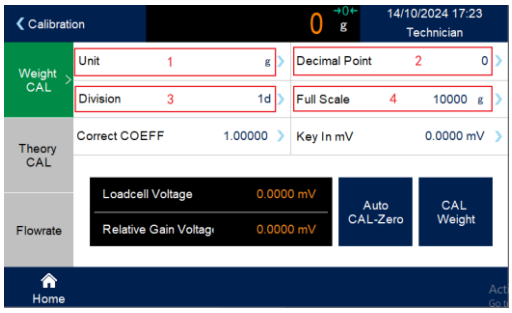




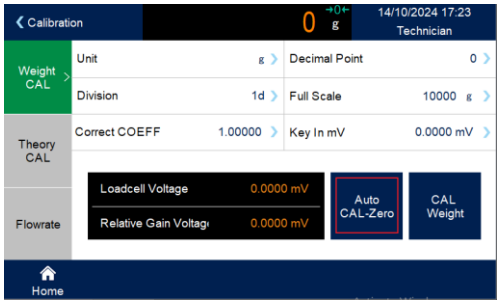
## 4.2 Calibration

1. Click Menu, Click calibration, do the calibration operation，And Set the four items of calibration：Unit、Decimal Point、Division、Capacity （Reference chapters 3.3）



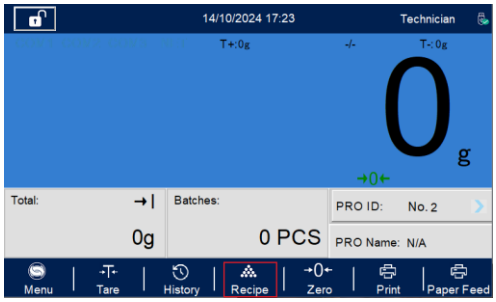

2.Calibration Zero:Click Auto Cal-Zero，Complete zero point calibration



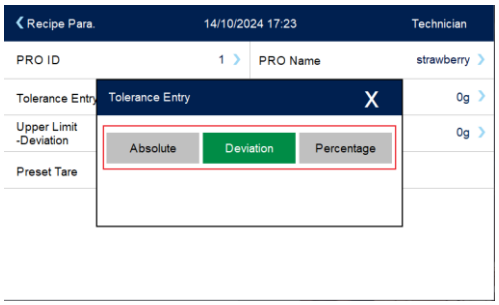

3.Gain Calibration,：support 5 point calibration, Calibrate from top to bottom.


## **4.3** Parameter settings

1.Set recipe parameter after calibration, return home interface, click recipe.



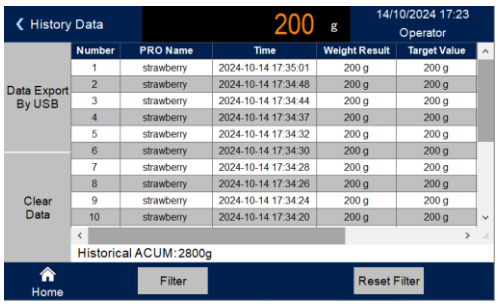

2.Select tolerance entry, set PRO Name and other parameters



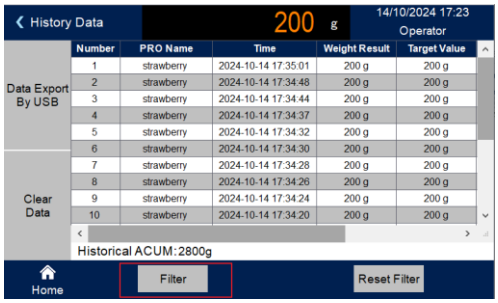


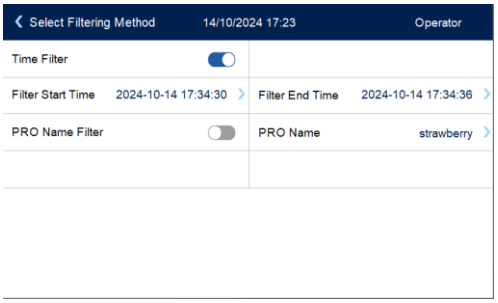
## **4.4** Static weighing progress

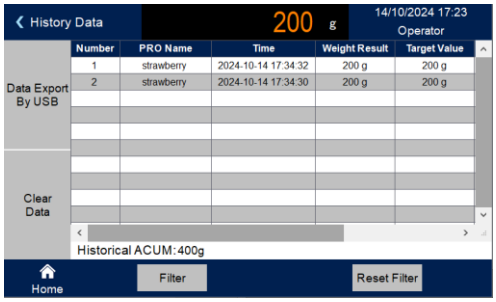
1.Start to weighing the item, if item in qualified zone then record once, and generate history record.



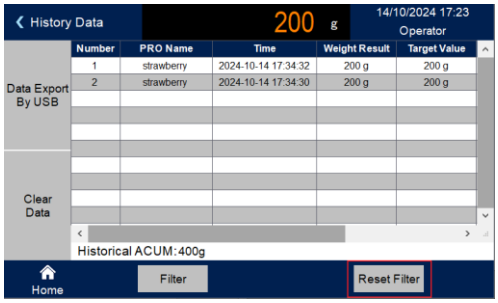
2.Click filter,  Open the Time Filter switch and PRO Name Filter switch, could do time interval and Pro name filter for history record



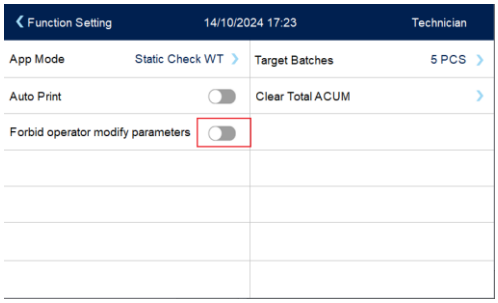



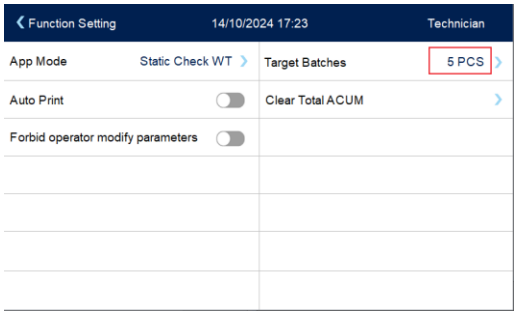

3.Click to reset filter,  restore the original history filter.

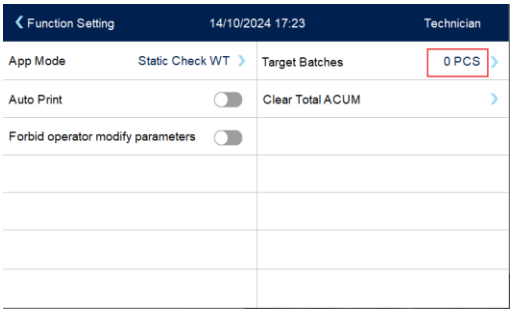



1）Supplement1: if  customer want to forbid operator modify parameters, which could turn on the switch.

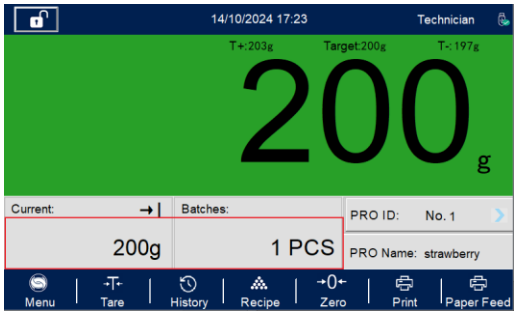


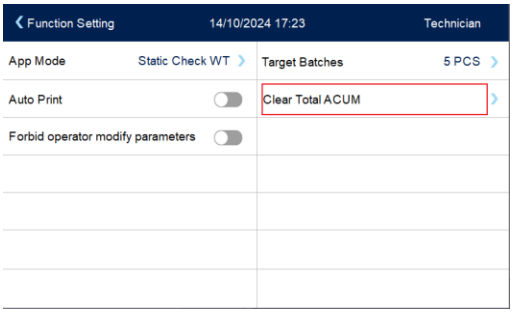

2）If  customer want to stop if the corresponding batches is completed, could set this parameter to the corresponding number. If the parameter is 0, which means disable target batches function.



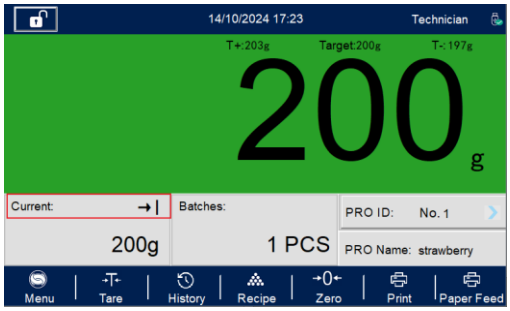



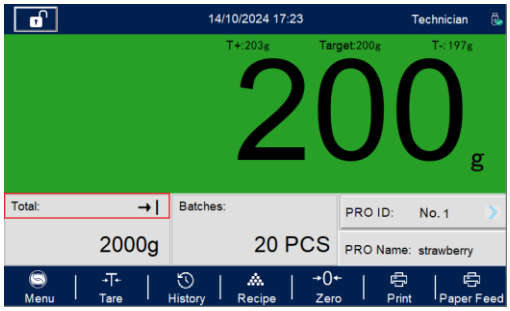

3）Supplement3:clear acum，could long press the area in home interface or press the area in function setting interface.



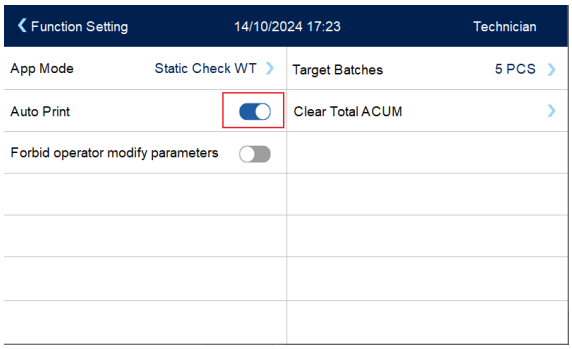




4）Supplement4:click the area to switch current record and total accumulation.

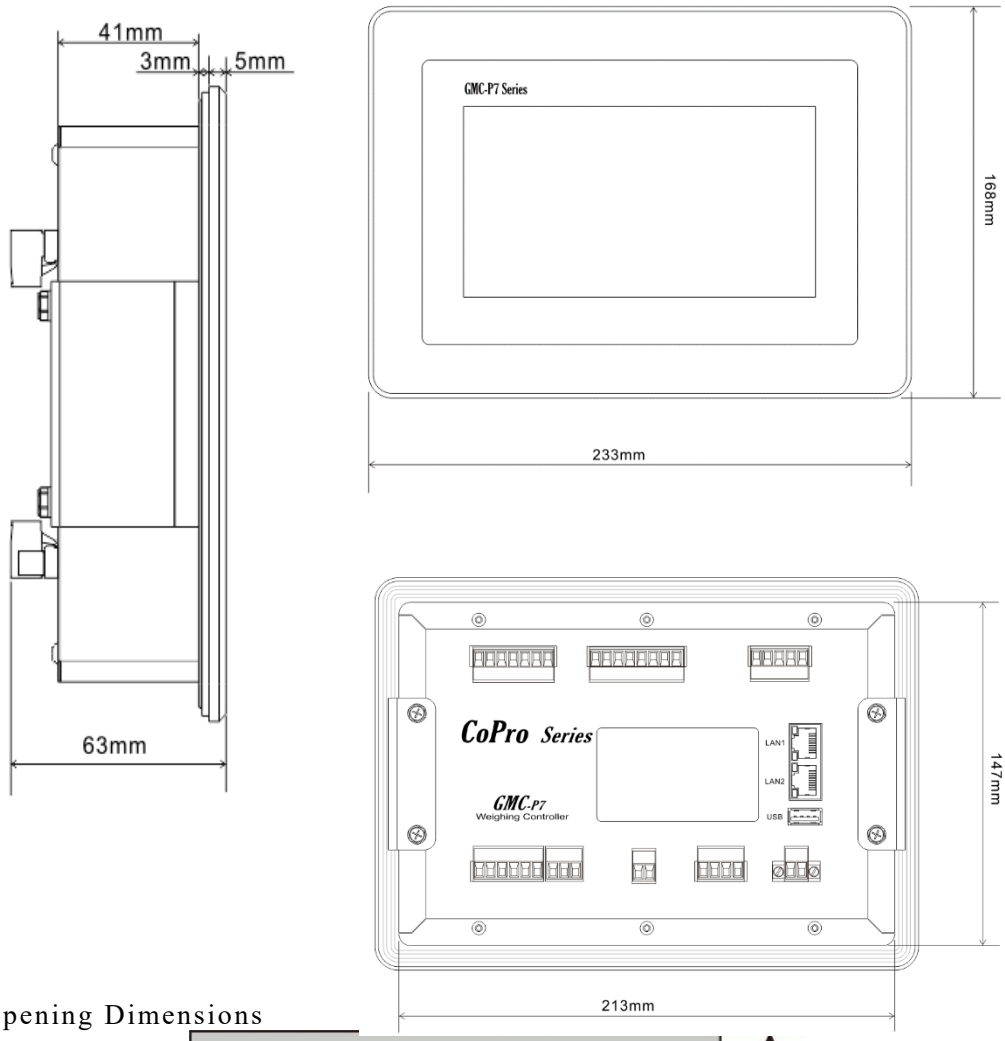



5）Supplement5:turn on the switch could support auto print.



# Chapter 5 product size




Opening Dimensions