GENERAL MEASURE

杰 • 曼 • 科 • 技

GMT-H2

User Manual

110611050003
V01.00.12

 **Warnings**	The product is powered by DC24V power supply, and using AC220V power by mistake will permanently damage the instrument.
	Keep the instrument well grounded.
	The product is electrostatic sensitive equipment. Please take anti-static measures during use and maintenance

Standard & Certification	Product standard: **GB/T 7724 -- 2008** Verification regulation**: JJG 649-2016** **CMC accuracy** level 3; Guangdong **System 0000000**48; Safety certification: **CE**

Contents

Chapter 1 General Description

1.1 Functions and Characteristics

Shell type	Hanging, stainless steel waterproof shell	
Loadcell interface	**1 way** 6-wire analog loadcell interface for up to **8** 350Ω **loadcells**	
Display	**2** "6-bit **LED** nixie tube	
Interface	**2** way RS**485** port, **1** way RS**232 port**	
	4 In and **6** out transistor input/output ports	
	1 analog output interface (current/voltage optional)	
	Optional interface	Single network interface
		Profinet bus interface
		Ethernet/IP bus interface
		EtherCAT bus interface
		CCILINK IE bus interface
Preset point function	Four preset points are provided, which can be set as required	

1.2 Technical Specifications

Power supply	**24VDC (18 to** 36**VDC)**
Dimension	**240*70*150mm**
Product weight	**2200g**
Certified working environment	**-10 ~ 40℃； 90%R.H** without dew
Working environment	**-20 ~ 60℃； 90%R.H** without dew
Storage environment	**-40 ~ 60℃； 90%R.H** without dew
Power	**10W**
Platform excitation voltage	**5V 200mA(MAX)**
Load cell requirements	**1** analog loadcell interface ,connect up to **8** 350Ω **loadcells with 1mV/V, 2mV/V, and 3mV/V** sensitivity
Sensitivity/Certified sensitivity	**0.01 uV/uV/d d / 0.5**
Non-linerarity	**0.01% F.S**

A/D conversion speed	Default**: 480** times/second (parameter optional)
Display Precision	**1/1000000**
Keyboard	5-key sounding mechanical keys
Decimal point	**0**, **0.0**, **0.00**, **0.000**,**0.0000**; **5 optional**

1.3 Panel Diagram

Status Indicator:

POWER: Power indicator**,** lights up when indicator is power on.
ZERO: Zero point indicator, Light on when present weight is within 0±1/4d.
STAB: Steady indicator; When the weight changes within stable range, which means weight is stable, the indicator lights up.
NET: Net weight indicator, can be defined as serial port 1/ serial port 2/ serial port 3/ network port/net weight, can be selected through the system parameters **SYS-- t5--t5.2**. The default is net weight indicator, display weight for net weight, the indicator light; If it is defined as a serial port or network port, it blinks during communication.
Note: The operation process for switching positive and negative values when there is no weight calibration or comparison value setting page: When the sixth bit of the data is set and the MENU key is pressed, the current data will flash as a prompt, indicating that the operation is to set the sign bit of the current value (the seventh bit). OPTION can be used to switch and select the sign bit of the current value. If the NET light is on when OPTION is pressed, pressing ENTER at this moment will set it to a negative number;

otherwise, it will set it to a positive number.

COM1: Serial port/network port communication indicator, can be defined as serial port 1/ serial port 2/ serial port 3/ network port, can be **selected** by system parameter **SYS-- t5--t5.3**, the default is serial port 1, **RS485_1,**the indicator blinks when communicating.

COM2: Serial port/network port communication indicator, can be defined as serial port **1**/ serial port **2**/ serial port **3**/ network port, can be **selected** by the system parameter **SYS-- t5--t5.4**, the default is network port, the indicator blinks when communicating.

Key Description:

:Zero/ESC, exit the current interface or return to the previous interface; In the state of net weight, perform clearing tare; Under the state of gross weight, perform zero; In Calibration information interface, long press to clear the calibration information.

: Parameter selection key,when input data, the display blinks, press this key to increase **1**, if the blinking position is **9**, press this key to turn 0; In the state of gross weight, perform tare operation, will show net weight;

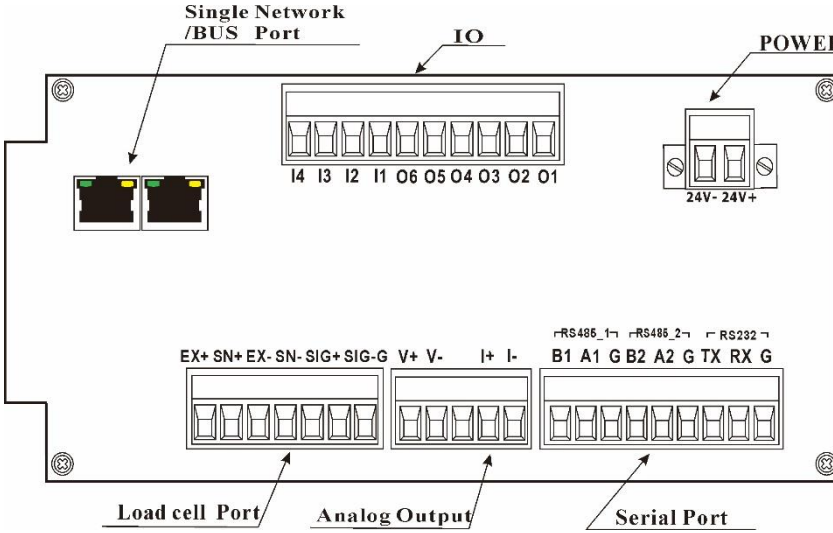
: Menu key, when input data, the display data flashes, press this key, the blinking bit moves to the right one, if the current blinking is the last bit, press this key, then the blinking bit moves to the leftmost bit.

: Confirm key, confirm to select the current option or data when calibrate or parameter setting; Under the main interface, short press to switch the display weight and analog; Long press to enter the interface of viewing version information, in this interface, short press to switch software version and software time; in the interface of software time, long press again to enter the interface of viewing calibration information, and in this interface, short press to switch calibration times and calibration verification

code.

PRINT : Long press to print/short press to feed paper; when input parameter, press this key, flash bit data reset to **0**; in the zero point millivolt interface, press this key to clear millivolt.

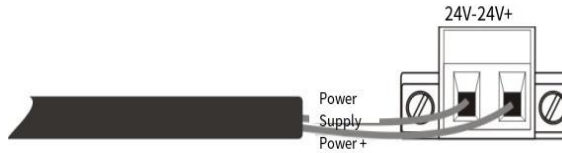
1.4 Interface Diagram



Chapter 2 Installation and Wiring

2.1 Connection of Power Supply

GMT-H2 Stainless steel converter controller uses DC **24V** power supply. The correct wiring of the power terminal is shown below:



※ **PLEASE PAY ATTENTION TO THE POSITIVE AND NEGATIVE POLARITY OF THE POWER SUPPLY AND DO NOT CONNECT IT BACKWARDS.**

2.2 Loadcell Connection

GMT-H2 needs to be connected with resistance strain bridge loadcell, and the loadcell is connected to it in the six-wire system as shown in the following figure. When a four-wire loadcell is selected, **SN+ and EX+** of the H2 must be **short-connected**, and **SN- and EX-** must be **short-connected.** Each port of the loadcell connection terminal is assigned as:

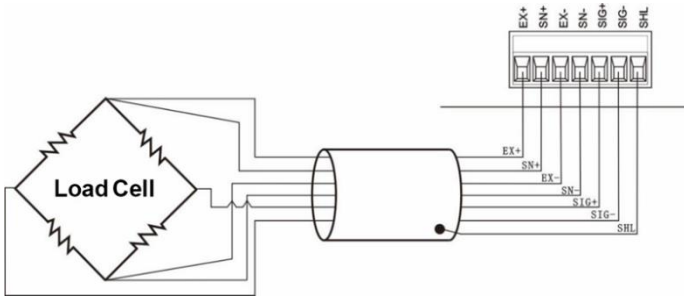
Ports	**EX+**	**SN+**	**EX-**	**SN-**	**SIG+**	**SIG-**	**SHLD**
6-wire	Power positive	Sensitive positive	Power Negative	Sensitive negative	Signal Positive	Signal Negative	Shielded wire
4-wire	Power positive		Power Negative		Signal Positive	Signal Negative	Shielded wire

Note:

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

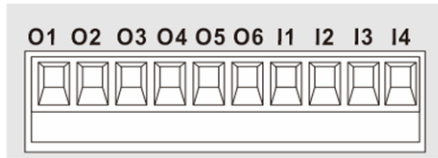
2. For short transmission distance and little temperature changes in the occasion or accuracy requirements are not high occasions can choose the four-wire loadcell; But for far transmission distance or high accuracy requirements of the application should choose the six-wire system loadcell;

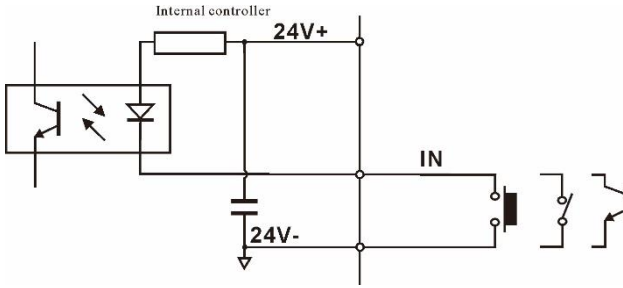
3. For applications where multiple loadcells are connected in parallel, make sure the sensitivity (mV/**V**) of each loadcell **is consistent.**



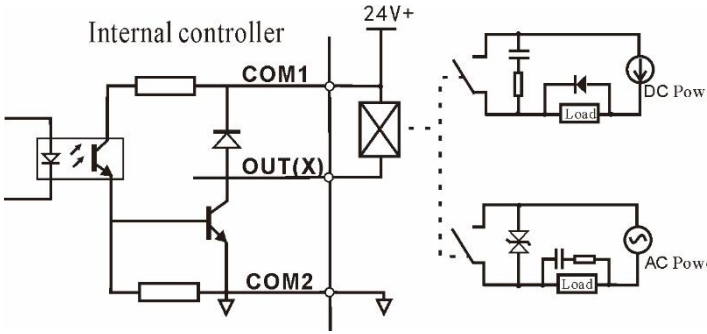
2.3 IO interface

GMT-H2 stainless steel transmitter includes **10** way input and output controls **(4** in **/6** out). adopt Photoelectric isolation mode, and the instrument internal power supply drive. The input of the instrument is low level valid; The output adopts transistor open collector output mode, each drive current up to **500mA**, full load current up to 3A. The terminal wiring is shown in the figure below:





Input interface diagram



Output interface diagram

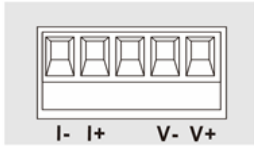
GMT-H2 stainless steel transmitter IO can be customized for the convenience of the user wiring and some special applications, IO contents refer to Chapter **9.1**. When the product leaves the factory, the default definition is as follows:

Output		Input	
OUT1	Undefined	**IN1**	Undefined
OUT2	Undefined	**IN2**	Undefined
OUT3	Undefined	**IN3**	Undefined
OUT4	Undefined	**IN4**	Undefined
OUT5	Undefined		
OUT6	Undefined		

2.4 Analog interface

The instrument has **1** analog output function, interface **I+**, **I-**, **V+**, **V-**. The output mode current/voltage can be selected in the analog parameters list and the analog calibration method, please refer to Chapter **6** for details. Under the normal display state, you can view the analog output by pressing the button Wt/AO ENTER. The format is **A X.XXX**.

The analog output interface is defined as shown on the left:



V+: positive end of voltage output;

V-: negative end of voltage output

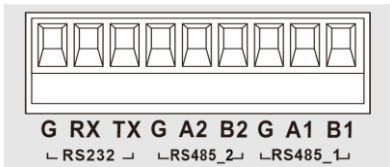
I+: positive end of current output;

I-: negative end of current output

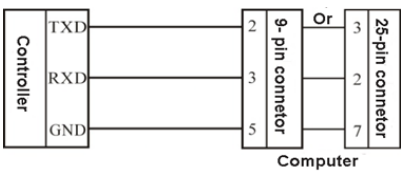
2.5 Serial Port Connection

GMT-H2 are equipped with three serial ports: two **RS485** serial ports and one **RS232** serial port. Support a variety of protocols: Modbus-RTU protocol, command mode, continuous mode, printing, BR-Send protocol, BR-CMD protocol, etc.

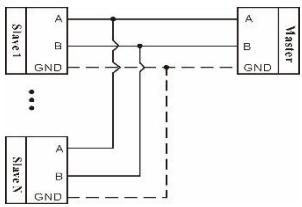
RS485_1(Serial Port1), RS485_2(Serial Port2), RS232(Serial Port3) ports are shown as follows**:**



RS232 connection mode:



RS485 connection mode:



※ In **RS485** mode, the interface must be connected to wires **A** and **B**, **GND** is the signal ground. In the case of serious interference, low-resistance wires are used to connect the signal ground, so that the ground potential of each node is equal, which can significantly improve the communication quality.

※ In **RS232** mode, all three wires must be connected, including **Rx**, **Tx** and **GND**.

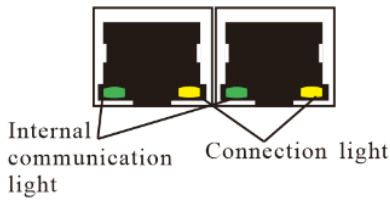
2.6 Network Port Connection

GMT-H2 supports common network port communication, PN, EIP ,EtherCAT and CClLINK IE bus communication (select 1 of 5 network port communication functions, order need to declare).

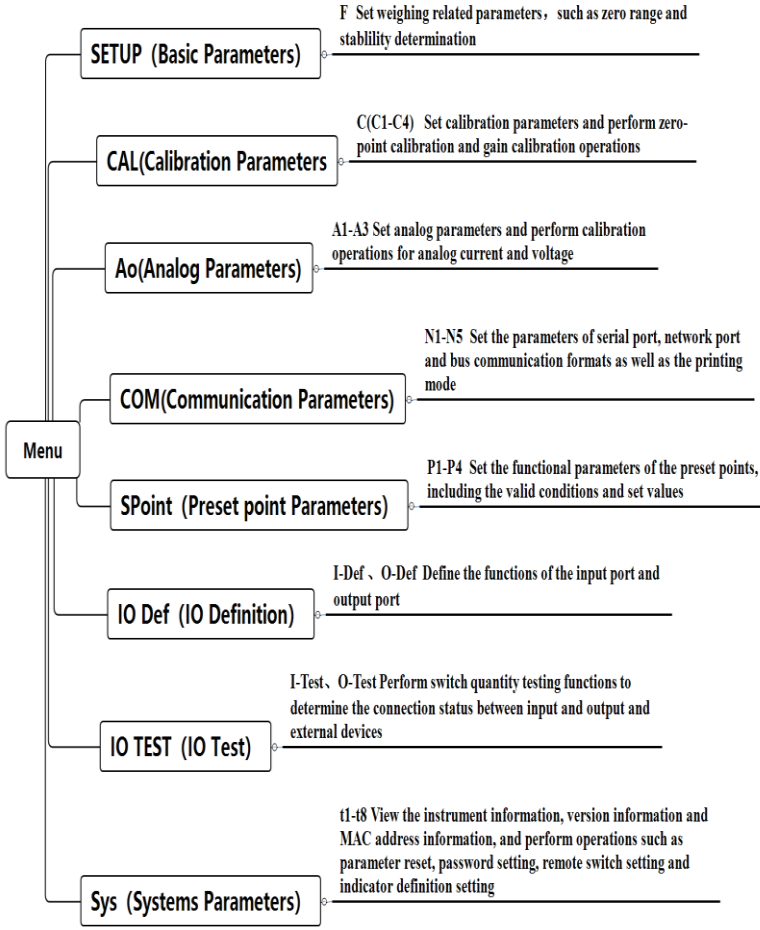
Single network port matching, Supports GMCont protocol, r-SP1 protocol, tt Tolido protocol, Cb920 protocol, rECont protocol, rErEAD protocol, PT650D protocol, WI-125 protocol (large screen protocol), Modbus protocol (bus), Br-Send protocol, and Br-Cmd protocol.

Internal communication light: The hardware connection is normal, and the internal communication light of the instrument is steady on.

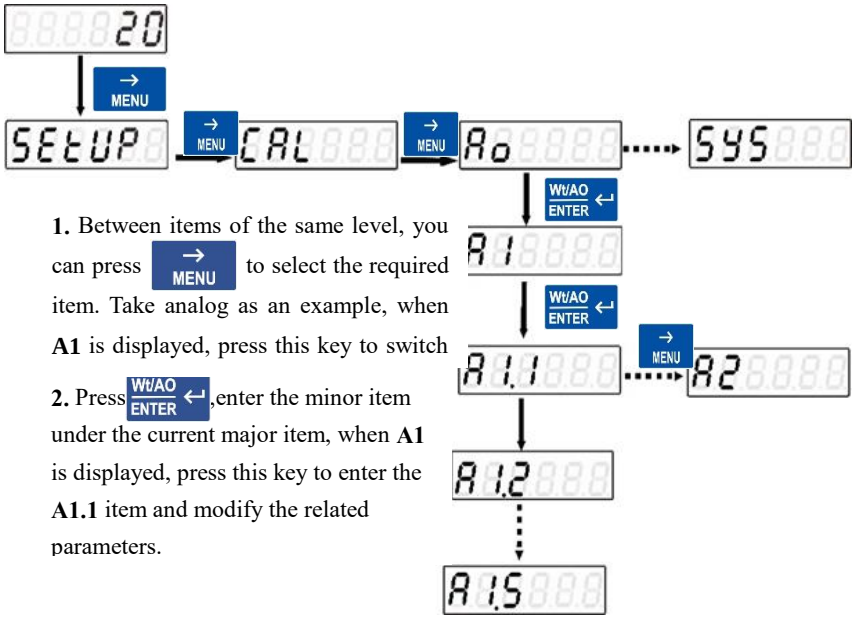
Connection light: The network cable is connected properly and the connection light blinks.



Chapter 3 Menu overview



3.1 Setting Flowchart



1. Between items of the same level, you can press MENU to select the required item. Take analog as an example, when **A1** is displayed, press this key to switch

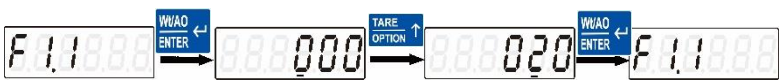
2. Press Wt/AO ENTER ,enter the minor item under the current major item, when **A1** is displayed, press this key to enter the **A1.1** item and modify the related parameters.

3.2 Parameter setting method

There are two types of **GMT-H2** parameter Settings: option class and numerical class. Option class parameters are in the parameter value screen, select with the key TARE OPTION . Numeric class parameters under the parameter interface, select numeric bits with keys MENU and numeric values with keys TARE OPTION .

For example:

Numerical classes:



Enter the first is **0** the second adjust to **2,** confirm Option-class:

Enter adjust **OFF** to **ON** confirm

Chapter 4 Basic Parameters (Setup)

4.1 Parameter List

Number	Initial value	Description
F1	None	
F1.1	**0**	PWR-On Zero Range (**0 to 101%** optional). **0**: Disable automatic zero during power-on. **1-100:** Performs automatic zero within the maximum range **1-100%** during power-on. **101**: Restore the last zero before turn off
F1.2	**0**	TrZero Range (**0 to 99d** optional). This parameter is used to automatically calibrate slight drift of zero due to a small amount of material remaining on the scale. When this parameter is **0**, the zero tracking function is turned off.
F1.3	**20**	Zero Range (**00%~99%** of maximum range). If the current weight is greater than the maximum range* Zero range, the display displays "**Error2**" alarm; If the scale is not stable for zeroing, the monitor will display "**Error3**" alarm.
F1.4	**1**	STAB Range (**0 to 99d** optional). If the weight continues to change within the stable range, the weight value is considered stable.
F1.5	**4**	Digital filter level **0**: no filter; **9**: strongest filter (**0~9** optional)
F1.6	**0**	Steady-state filter level (**0 to 99d** optional) **0:** Turns off the stable-state filter. **Non-0**: Starts the stable-state filter if the weight changes within the range
F1.7	**480**	AD sampling rate: **30, 60, 120, 240, 480, 960** times/**s** optional
F1.8	**OFF**	Tare record function switch **OFF**: turn off tare memory function; **ON**: After power off and restart, the instrument still retains the previous tare weight.
F1.9	**1000ms**	TrZero Time (**1-5000ms** optional) during the tracking time, if the weight change is less than the tracking range, the system will automatically track the zero position.

F1.10	**1000ms**	STAB Timer (**1-5000ms** optional) Range:**1-5000** milliseconds.If the weight range does not exceed the STAB range during that time, the weight is stable
F1.11	**1**	Force Zero Threshold(**1-999999** optional) Set the Force zero threshold value,If the current weight is less than or equal to this set value and not 0, one of the force zero return conditions is met.
F1.12	**3**	Force Zero Timer(**1-20s** optional) Set the Force zero time,The weight remains stable within the reset threshold and within this set time, meeting the force zero reset condition.
F1.13	**OFF**	Force Zero Switch **OFF:**Turn off the force zero function, **ON:**After being turn on, the current weight is less than or equal to this set value and not 0 and remains stable within this set time.After force zero Time, the Force Zero operation is excuted.
F1.14	**0-15**	Signal range: 0-5mV; 0-10mV 0-15mV -5-5mV -10-10mV -15-15mV.

Chapter 5 Calibration (CAL)

5.1 Calibration Instruction

(1) When **GMT-H2** weight display or any part of the weighing system is changed for the first time and the current device calibration parameters cannot meet user requirements, the display should be calibrated. The calibration can determine the system zero position and gain of the weighing system.

(2) after modifying the parameter and completing the setting, press the key Wt/AO ENTER saves the current setting, press the key ZERO ESC returns to the normal working state.

(3) Refer to Chapter 14 for the error alarm information in the calibration process.

5.2 Calibration Parameters

Number	Initial value	Instructions
C1		
C1.1	**kg**	Unit, Range: **t**; **kg**; **g**; **lb**
C1.2	**0**	Decimal point**,** Range: **0**; **0.0**; **0.00**; **0.000; 0.0000**
C1.3	**01**	Division value**1**, the weight minimum change value.Range: **1,2,5,10,20,50**
C1.4	**10000**	Maximum range, the maximum display weight of the instrument, generally take the loadcell range. Range: **0~999999** can be set.
C1.5	**01**	Division value **2**, range: **1,2,5,10,20,50**
C1.6	**10000**	Range 2; Range:Division value * 1,000,000
C1.7	**01**	Division value **3**, range: **1,2,5,10,20,50**
C1.8	**10000**	Range 3; Range:Division value * 1,000,000
C2	Zero calibration, perform zero calibration and zero calibration without weight, refer to Chapter 5.2.2 zero calibration.	
C3	Weight calibration, perform weight gain calibration or theoretical value calibration, refer to Chapter 5.2.3 weight calibration.	
C4		

C4.1	**1.00000**	Calibration correction coefficient, after calibration, if the zero point is correct, there is a deviation of weight, can be used to correct the weight value. How this value is calculated: If the instrument display weight **A**, but the weight is **B** after weighing, the correction factor is calculated by :(actual weight **B** * current correction factor)/ displayed weight **A**

Multi-division function description: After setting different values for all division values and ranges, the instrument selects the division to be used within the current range based on the current weight. (Note: The division does not need to be incremented, and the range must satisfy the incrementing relationship.)

Example: Settings

The division value1 is 1 and the range 1 is 10000.

The division value2 is 5 and the range 2 is 20000.

The division value3 is 2 and the range 3 is 30000.

When the weight is 999, the range is 10,000 and the division value is 1.

When the weight is 22,999, the range is 30,000 and the division value is 2.

When the weight is 11,999, the range is 20,000 and the division value is 5.

Description of CAL steps:

a) Enter the **CAL** calibration interface and input the correct calibration password.

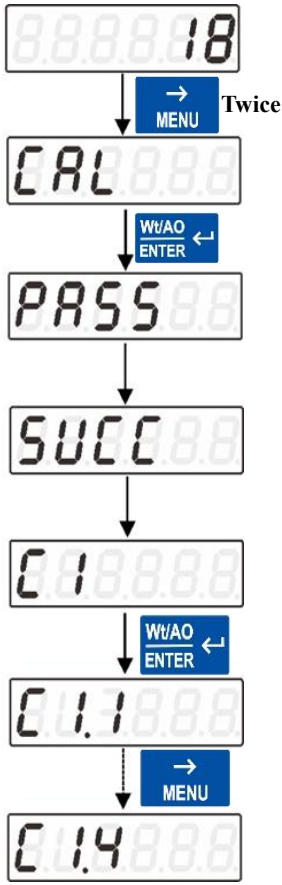
b) Select the required unit, decimal point, minimum indexing and maximum range in **C1** parameter. Refer to Chapter5.2.1 Parameter selection for details.

c) For zero point calibration, Refer to Zero Calibration flow chart in Chapter5.2.2.

d) For weight gain calibration, Refer to Gain calibration flow chart in Chapter5.2.3.

Note: If it is not convenient to load weights on site for system calibration, manual input zero calibration (refer to manual input in Chapter5.2.2) and theoretical value calibration (refer to Chapter5.3) can be used for calibration without weight.

5.2.1 Parameter selection



1. In this state, press → MENU (twice) to display **CAL**. Press Wt/AO ENTER to enter the password input interface.

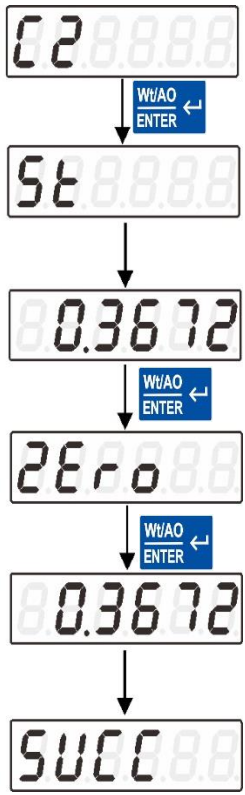
2. Enter the password correctly and enter the **C1** parameter selection interface automatically one second after **SUCC** is displayed. Press TARE OPTION and Wt/AO ENTER select the corresponding unit, decimal point, division and capacity according to the demand.

5.2.2 Zero Calibration

Zero calibration means zero calibration of the weighing platform.

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

Automatic obtain method:



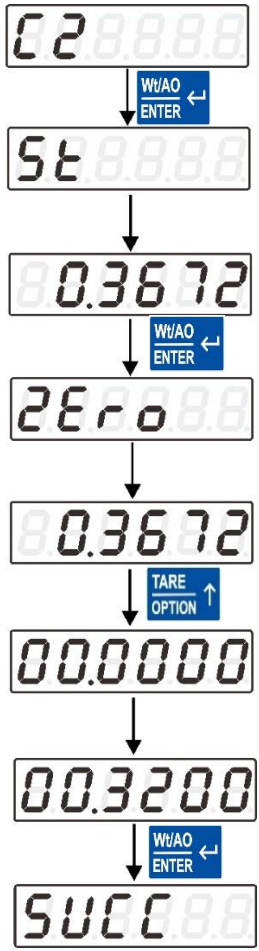
1. Millivolt display interface, the display value is similar to the value obtained by users using a multimeter to measure the voltage of **SIG+** and **SIG-** of the loadcell, the specific function and application description refer to Section 5.4.

2. Zero calibration interface, empty the scale, wait for stable display (**STAB** indicator light), press Wt/AO ENTER, display **SUCC** complete zero calibration.

※ If zero is not calibrated, press ZERO ESC to return **C2**.

Manual input:

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



Zero calibration interface, press TARE OPTION, enter the zero millivolt value of the historical record, press Wt/AO ENTER, display **SUCC** to complete the zero calibration.

※ If zero is not calibrated, press ZERO ESC return **C2.**

5.2.3 Weights Calibration

Use standard weights for weight calibration. Calibration steps:

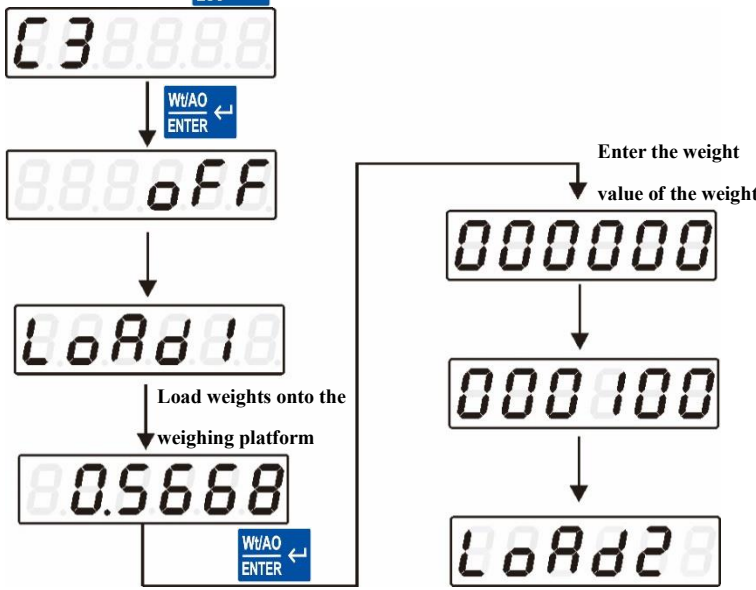
1）Enter the gain calibration interface **C3**, the display **OFF** means enter the weight gain calibration**;**

2）This instrument supports **5** calibration points, take the CAL Point**1**

calibration as an example, display **Load1**, load weights to the weighing platform, when the stable output is valid, press the button Wt/AO ENTER;

3）Display **000000** interface, input weight corresponding weight value;

4）Press Wt/AO ENTER key to complete the calibration point**1** weight calibration, single point calibration, after the completion of the calibration of the first weight point,press ZERO ESC and exit.



Using multi-point calibration should note:

1） Users can choose the number of calibration points, such as single point calibration, after the completion of the calibration of the first weight point can exit.

2） Cross-point calibration is not allowed, and gain points are calibrated in sequence. For example, when **3-point** calibration is adopted, it is necessary to calibrate point **1**, point **2** and point **3**, but it is not possible to calibrate point **3** and point **4** after completing point **1** by crossing point **2**.

3） For multi-point calibration, the weight should be increased. For example, the weight of calibration point **2** must be greater than the weight of calibration point **1,** otherwise the alarm of "Error" will appear.

5.3 Theoretical value calibration

Theory CAL refers to weight calibration operation by connecting loadcell sensitivity and loadcell range value through input.

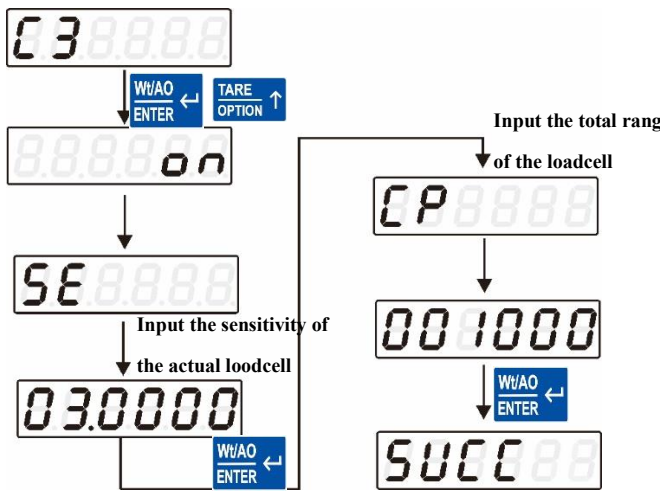
Theory CAL needs 3 steps:

1） Enter the gain calibration interface **C3**, display **ON**, it means open the " Use T-CAL " switch, enter the theoretical value calibration interface**;** If **OFF** is displayed, it will enter the weight gain calibration interface.

2） Prompt **SE**, set loadcell sensitivity (such as connecting multiple loadcells, enter the average sensitivity of all loadcells)

3） Prompt **CP**, set the total loadcell capacity(e.g. connect multiple loadcells, Enter the sum of all loadcell capacities)

4） Press Wt/AO ENTER the button to display **SUCC**, and the theoretical value calibration is completed



5.4 millivolt display application

This function is mainly used for system detection, four Angle error detection of force transmission mechanism, loadcell linearity detection.

1. System detection

1) When the millivolt number changes with the loading weight, it indicates that the loadcell connection is correct and the force transfer mechanism works normally;

2) When the millivolt number is **OFL**(or **-OFL**), it indicates that the pressure under the loadcell is too large (or too small), and the unloading weight (or loading weight) should be processed. If it is still **OFL(or -OFL**) after processing, it may be caused by the following reasons:

a) The force transmission mechanism is faulty. Please check and remove it

b) Loadcell wiring error, please check and remove

c) The loadcell is damaged, please replace the loadcell

2. Detect the four Angle error of the force transmission mechanism

Load and record the corresponding millivolts at the four corners of the weighing platform (or weighing hopper) respectively. If there is an obvious error, please adjust the force transmission mechanism.

3. Loadcell linearity detection

In the range of the weight transmitter, carry out multiple equal weight loading, before each loading with the zero key to clear millivolts, record the millivolt value after loading; After the completion of all weight loading, if one or more millivolts recorded differ greatly, it indicates that the linearity of the loadcell is not good, please replace the loadcell or adjust the force transmission mechanism.

Chapter 6 Analog Parameters(AO)

6.1 Analog parameters

Number	Initial value	Instructions
A1		
A1.1	**4-20mA**	Analog Type**,** range: 4-20mA**,** 0-10V**,** i_User**(user current**), u_User(**user voltage)** Note: The analog output mode is user current/user voltage only with **A1.2~A1.5** parameters
A1.2	**XXXXXX**	Minimum current/voltage
A1.3	**XXXXXX**	Zone Zero current/voltage
A1.4	**XXXXXX**	Capacity current/voltage
A1.5	**XXXXXX**	Maximum current/voltage
A2	Analog current calibration, specific operations refer to Chapter 6.2 Analog calibration	
A3	Analog voltage calibration, specific operations refer to Chapter 6.2 Analog calibration	

6.2 Analog calibration

The output of analog has been calibrated when the instrument leaves the factory, so the user does not need to calibrate the output of analog. If the analog output of the instrument is abnormal, the user can calibrate the analog output by himself. The calibration method of current and voltage is the same.The calibration method takes current calibration as an example (it is recommended to calibrate under the guidance of professional personnel).

1) Use a multimeter to connect the **I- and I+** output ports of the H2**.**

2) Combine the TARE OPTION ↑ and Wt/AO ENTER ↵ key to modify the **DA** code and view the change of the multimeter's voltage**.**

3) Input the multimeter to read the value

4) Press Wt/AO ENTER ↵ key, complete the analog current calibration.

5) Current calibration supports **5** points calibration, other points calibration reference calibration point **1**.

Chapter 7 Communication Parameters (COM)

7.1 Communication Parameters

Number	Parameter item	Instructions
N1	**RS485_1 Serial port parameters**	
N1.1	**01**	Slave ID, range: **01-99**
N1.2	**38400**	Baud rate, range**: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200**
N1.3	**Modbus-RTU**	Communication protocol: **Modbus RTU**, r-Cont, r-SP1, **tt(continuous** transmission), CB920, rE-Cont, rE-Read**, PT650D, YH(protocol), Print, WI-125, BR-Send(protocol、BR-Cmd(protocol**
N1.4	**8-E-1**	Data Format, range: **8-N-1, 8-E-1, 8-O-1, 7-E-1, 7-O-1**
N1.5	**AB-CD**	Modbus High and low words, range: **AB-CD** (high words first), **CD-AB** (low words first)
N1.6	**20ms**	Continuous send interval, the time interval between frames under the continuous send protocol. Range: **0-1000ms**
N1.7	**OFF**	Whether to send checksums under the tt(Toledo continuous Mode) protocol. **OFF**: No verification is sent**. ON**: sends the verification. **YH** (continuous mode) **OFF:** Does not judge if it is stable; (send real-time weight) **ON:** Judge if it is stable (send real-time weight when stable, send 0 when unstable)
N2	**RS485_2 Serial port parameters**	
N2.1 ~ N2.7	Refer to **RS485_1 serial port parameters**	
N3	**RS232 Serial port parameters**	

N3.1 ~ N3.7	Refer **to RS485_1 serial port parameters**	
N4	**Network port communication parameters**	
N4.1	**Mb-TCP**	Communication mode: If a common network port is selected**, the following protocols are available**: **Mb-TCP (Modbus-TCP), GM-Cont (GM-Cont/TCP), r-SP1**,**tt,CB920**, **rECont,rEREAD,PT650D**,**WI-125,BRCMD,BRSEND**
N4.2	**AB-CD**	Double word mode, range: **AB-CD** (high word first), **CD-AB** (low word first)
N4.3	**20ms**	Send interval, used to control the time interval between frames. Range: **0-1000ms**
N4.4	**502**	Port, range: **1-65535**
N4.5 ~ N4.8	**192.168.000.001**	Local IP address segment ranging from **0.0.0.0 to 255.255.255.255.**
N4.9	**OFF**	Remote setting switch(This parameter is visible when selecting **PN/EIP** attach board) Range: **OFF**, **ON**; **ON:** During PN/EIP communication**,** working parameters and some calibration parameters can be modified through the master station. **OFF:** During PN/EIP communication**, the** modification of parameters at the master station does not take effect.
N4.10	**Flo wt**	Data type, **PLC Display** type selector switch. Range: Int**: integer weight** display, Flo wt**(Float)** : **floating point** weight display
N4.11	**0**	Site alias, range: **0-65535.**
N4.12	**0**	Network port TT checksum switch; Initial value: 0: OFF Range: 0-1 (corresponding to 0:

		OFF; 1: ON)
N5	**Print parameters**	
N5.1	En	Scope: Chinese **(Chn)**, English **(En)**
N5.2	**0**	Print content, range: 0- Show weight, 1- gross weight, 2- net weight, 3- Net weight + Tare (two lines), 4, Gross weight + net weight + Tare (three lines).
N5.3	**2**	Print interval, number of lines spaced between each print, range: **0-99**
N5.4	**0**	Print format; Initial value: 0: Print format with ticket number Range: 0-1 (Corresponding to 0: Print format with ticket number; 1: print format without ticket number)

7.2 Print Format

Communication parameter **Com-- N1-- N1.3** When the protocol is selected as "Print", long press PRINT under the main interface to print the instrument data, or set the input to I11 print, and print through the IO; Short press PRINT to feed paper.

Examples of print formatting applications:

Parameter Settings		Print ticket contents
Printing language	**En**	@TNo. 1
Print the content	Displayed weight	Displayed weight
Print interval	**2**	Net: +136kg
		---------- (second print)

Chapter 8 Preset-Point Parameters (SPoint)

Press the key → MENU five times under the main display interface, **SPoint** will be displayed. Under this interface, press the button Wt/AO ENTER ↵, if the parameter password switch **t6.2** is **ON**, then the parameter password needs to be input; if it is **OFF**, then the set point parameter can be set **P1** without entering the password; press the button Wt/AO ENTER ↵ to enter the **P1.1**, set the relevant set point parameters according to the parameter table, and press Wt/AO ENTER ↵ save after modification. Then press ZERO ESC ↖ to exit to item **P1**, and press → MENU to set the next parameter. The same can be used for parameter settings of other parameter items.

Note: There are four major items in the set point. Set point **X** represents "set point **1** to **4**", which can be set by the user as required.

No.	Initial value	Instructions
P1-P4	/	**Parameter first major item**
PX.1	**OFF**	Whether needs to be stable; **OFF**: No; **ON**: yes.
PX.2	**0.2**	Minimum duration; Range: **0 to 99.9**
PX.3	**P1.3 = 1** **P2.3 = 1** **P3.3 = 1** **P4.3 = 1**	Valid condition: **0**: Disable. **1**: <(less than); If the weight is less than PX.4, it is valid, otherwise it is invalid. **2**: <=(less than or equal to); If the weight is less than or equal to PX.4, it is valid, otherwise it is invalid. **3**: ==(equals); If the weight is equal to PX.4, it is valid, otherwise it is invalid. **4**: >=(greater than or equal to); If the weight is greater than PX.4, it is valid, otherwise it is invalid. **5**: >(greater than); If the weight is greater than PX.4, it is valid, otherwise it is invalid.

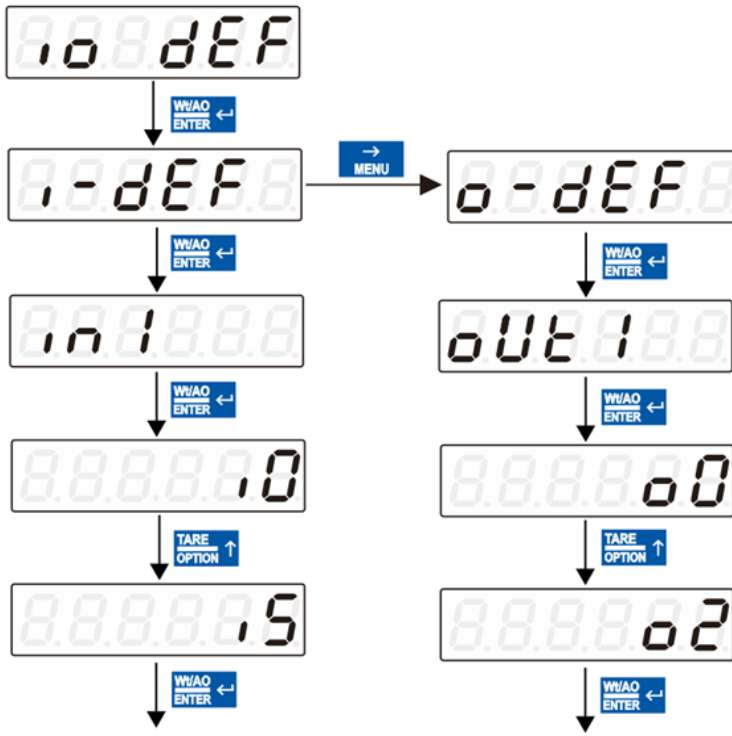
		6:! =(does not equal); If the weight is not equal to PX.4, it is valid, otherwise it is invalid. **7**: _<>_ (outside the interval), If the weight is less than PX.4 or greater than PX.5, it is valid, otherwise it is invalid. **8**: =<__>=(within the interval), If the weight is greater than or equal to PX.4 and less than or equal to PX.5, it is valid, otherwise it is invalid. **9**: external trigger. If it is **IO**, Triggered once, the state changes once. If it is a command, it is judged by accepting valid or invalid commands.
PX.4	**0**	Preset weight point **1**; **-999999 to 999999** can be set
PX.5	**0**	Preset weight point **2**; **-999999 to 999999** can be set

Chapter 9 IO Definition

9.1 IO Definition

Under the main display interface, press the key → MENU **6** times and the instrument will display io **dEF**. In this interface, press the key Wt/AO ENTER to enter the interface of custom setting of IO. If the **t6.2** item of the parameter password switch is **ON**, need to enter the parameter password before entering the custom setting of the IO.

IO Definition operation: Follow the steps to set the definition of each IO. For example, define **IN1** as the zero input and **OUT1** as the output of set point **1**. The Settings are as shown in the figure, The settings for other input and output ports are similar. Settings are the same.



Function meaning of IO:

Output		
Code	**Definition**	**Instructions**
O0	None	If the port number is defined as O0, this output port is undefined.
O1	SP**1**	If the set point 1 condition is met, the definition output is valid
O2	SP**2**	If the set point 2 condition is met, the definition output is valid
O3	SP**3**	If the set point 3 condition is met, the definition output is valid
O4	SP**4**	If the set point 4 condition is met, the definition output is valid
O5	Stable	This signal is valid when weight is stable
O6	Overflow	This signal is valid when weight overflow.
Input		
Code	**Definition**	**Instructions**
I0	None	If defined as **I0**, means this input port have no function.
I1	SP**1**	If this defined signal is valid, the corresponding preset point output status will switch to invalid. The valid state can be output only after the preset point condition becomes invalid and becomes valid again.
I2	SP**2**	If this defined signal is valid, the corresponding preset point output status will switch to invalid. The valid state can be output only after the preset point condition becomes invalid and becomes valid again.
I3	SP**3**	If this defined signal is valid, the corresponding preset point output status will switch to invalid. The valid state can be output only after the preset point condition becomes invalid and becomes valid again.
I4	SP**4**	If this defined signal is valid, the corresponding preset point output status will switch to invalid. The valid state can be output only after the preset point condition becomes invalid and becomes valid again.
I5	Zero	This signal is valid and will zero the weight. This input is a pulse input signal.
I6	Reset Parameter	Reset all parameters when the signal is valid.

I7	Tare/Clear Tare	This signal is valid once for taring, and it is valid again for clearing tare.
I8	Tare	This signal valid performs the tare operation
I9	Clear Tare	The signal valid performs the clear tare operation
I10	Calibration lock	After defining this function, if the signal is valid (level signal), can enter the first step(enter the password) of the calibration process. Otherwise, can't enter the process and will be prompted with an error 7. If this function is defined, can't calibrate by serial port(modbus-rtu).
I11	Print	When this signal input is valid, perform print operation.
I12	Gross/ Net weigt switch	When the signal input is valid, switch gross/net weight .

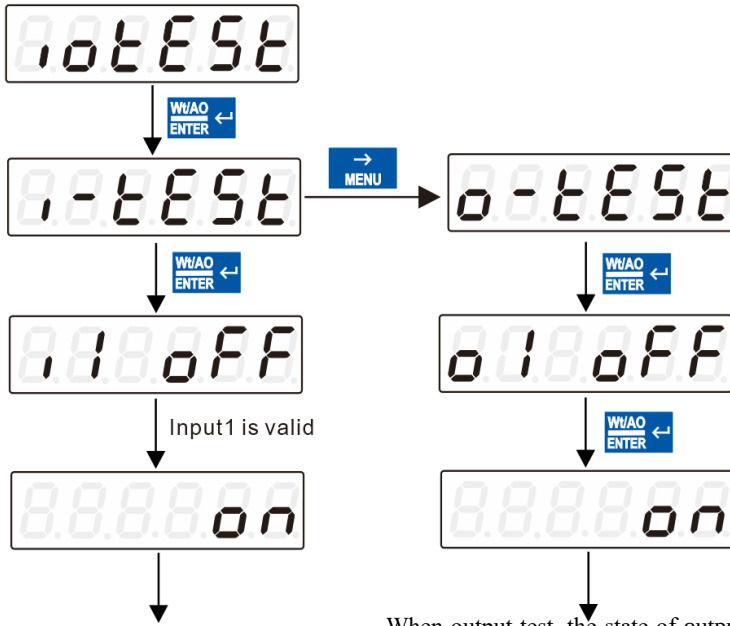
9.2 IO test

The instrument IO test function is used to test whether the **IO** port is correctly connected to the device. It is divided into input port test(**i-test)** and output port test(**o-test)**.

In the weighing state, press the button 

(**7** times) to display **ioTEST**. Press 

to enter the interface of IO test.



When the external **IN1** input is valid, the input port **IN1** switches from **OFF** to **ON**, as shown in the figure above. Indicates that input port **1** is properly connected. Test other input ports in the same way.

When output test, the state of output port **O1** is **OFF**. When press Wt/AO ENTER switch to **ON**, the external output **1** is valid, which means that the connection of output **1** is correct. Press MENU to test other output .

Chapter 10 System Maintenance (SYS)

Parameter Items	Instructions	
t1 Version information	Check the compile date and time, corresponding version information, calibration times, and calibration verification code. For details, see Chapter 1.3 Button Description.	
t2 Display test	Click, screen display **888888**, all indicators are on, press **Enter**, If **888888** and indicator flashes, means the screen display is normal.	
t3 Parameter reset	**t3.1** Reset All parameters	Show **yes** and click **ENTER** to restore all parameters to the factory Settings.
	t3.2 Reset calibration parameters	Show **yes** and click **ENTER** to restore the calibration parameters to the factory Settings.
	t3.3 Reset application parameters (except calibration parameters)	Show **yes** and click **ENTER** to restore parameters other than calibration to factory Settings.
t4 Remote Edit	**t4.1** Calibrate parameter remote edit switch	**ON** and **OFF** are optional. If **ON** is selected, the calibration parameters can be set through the communication port. Otherwise, the communication port is read-only to the calibration parameters.
	t4.2 Remote Edit switch of Application parameters (except for calibration parameters)	**ON** and **OFF** are optional. If **ON** is selected, application parameters can be set through the communication port. Otherwise, the communication port is read-only to application parameters.
t5 Indicator customization	**t5.1** Backlight level	Set the display brightness level. Initial value: **mid**; Range**: low (**low brightness), **mid** (medium brightness), **high (**high brightness)
	t5.2 NET Indicator	Initial value: **4**; Range: **0-4,**

	Definition	respectively **0-** serial port **1,**1 - serial port 2**,2** - **serial port 3,3** - **network port,** 4**- net weight.**
	t5.3 Communication Indicator **1** Definition	Initial value: **0**; Range: **0-3**, **0- serial port** 1, **1 - serial port 2,2** - **serial port 3, 3- network port**.
	t5.4 Communication Indicator **2** Definition	Initial value: **3**; Range: **0-3**, **0- serial port** 1, **1 - serial port 2,2** - **serial port 3, 3 - network port**.
t6 Password Settings	**t6.1** Calibrate and reset password Settings	To set the password for entering the calibration parameters and resetting the parameters, enter the same password twice.
	t6.2 Parameter password protection switch	**ON** and **OFF** are optional. If you select **ON**, you need to enter the password when you enter the option to change the parameter value after it is enabled.
	t6.3 Parameter Password Settings	Password Function is valid if it set to ON. Used to set the password for entering other parameters besides the calibration parameter and parameter reset. Need to enter the same password twice to modify.
t7 MAC Settings	The **MAC** address of the instrument can be queried but cannot be modified. Initial value: **BC.66.41.90.35.56**	
t8 Instrument Info	**t8.1** Instrument Model	Display instrument model name, default **GMT-H2**, model name can be customized, refer to Chapter 15 for details.
	t8.2 Instrument **ID**	Display instrument **ID**, default: **0000**, modifiable.
	t8.3 Attach Board **1** Info	Display attach board information. **100**: No attachment board; **101: TCP** network port; **102:**PN**; 103:EIP; 104:EtherCAT; 105: CCILINK IE.**

Chapter 11 Serial Communication

GMT-H2 is equipped with 3 serial ports, 2 **RS485** and 1 **RS232** to build communication with the master computer.

The serial port supports **r-Cont** protocol, **r-SP1** protocol , **tt** Torrido protocol, **Cb920** protocol, **rECont** protocol, **rErEAD** protocol, **PT650D** protocol, **Yh** protocol, **WI-125** protocol (Big screen protocol) and **Modbus** protocol **(bus)**, and **Br-Send** protocol,**Br-Cmd** protocol.

See Section 2.5 for serial port terminals. The baudrate, communication protocol Settings and communication format are correspond to communication parameters N1.2, N1.3 and N1.4.

11.1 **r-Cont protocol**

Com-- **N1-- N1.3** Select r-Cont protocol. In this mode**,** there is no need to send any command to the weight transmitter. The monitor automatically sends the collected data to the supreme computer.

Its data frame format:

STX	Scale ID	Channel ID	Status	Weight	**CRC**	**CR**	**LF**

Instruction:

STX -- **1** byte, start character, **02H**

Scale ID-- **2** bytes, Range **01- 99**

Channel ID-----Fixe**d:** 31

Status -- **2** bytes, high byte: Fixed:**40H**; Low byte:the individual bits are defined below

D7	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
Undefined	Undefined	Undefined	Gross net weight	Plus /minus	Zero	Overflow	Stabilization
Fixed :**0**	Fixed :**1**	Fixed :**0**	**0:** gross weight **1:** net weight	**0:** positive **1:** negative	**0:** non-zero **1:** zero	**0:** Normal **1:** Overflow	**0:** Unstable **1:** Stable

Weight -- **6** bytes unsigned; Return "space space **OFL** space" when

weight positive (negative) overflows

CRC -- **2-** bytes, checksum

CR -- **1** byte, **0DH**

LF -- **1** byte, **0AH**

For example:

Current instrument automatically returns data: **02 30 31 31 40 41 20 20 20 37 30 30 (take display weight) 32 34 0D 0A**

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

11.2 **r-SP1 protocol**

Communication parameters **Com--N1--N1.3** Select **r-SP1** protocol. In this mode, the weighing display will send the current data to the supreme computer only when it receives the command.

Code: **ASCII**

Supported operation codes: **W**: write operation; **R:** read operation; **C**, calibration; **O**, Zero.

11.2.1 Parameter code description sheet:

Operations	Parameter code	Parameter name	Number of characters
R	**WT**	Read current status and weight	**8**
C	**ZY**	Calibrate zero with weights	
C	**ZN**	Calibrate zero without weights	**6**
C	**GY**	Calibrate gain with weights	**6**
R	**AM**	Absolute millivolts	**7** characters**: D6D5D4D3D2D1D0; D6:+; D5-D0: ASCII** code corresponding to 6 millivolts with a fixed decimal point of **4**
R	**RM**	Millivolts relative to zero	**7** characters: **D6D5D4D3D2D1D0 D6**: +/-; **D5-D0**: **ASCII**

			code corresponding to **6** millivolts, fixed with **4** decimal points
O	**CZ**	Zero Operation command	

11.2.2 Error Code Description Sheet

In the communication mode, if the weight transmitter receives a data frame error, there will be an error code in the data frame sent to the master computer. The error code is described as follows:

1: **CRC** check error

2: Operation code error

3: Parameter code error

4: Write data error

5: The operation cannot be performed

6: The channel ID is incorrect

Note: The default channel number for this monitor is: **1 (31H),** The scale number is fixed at 1 (30H, 31H).

11.2.3 Example Commands

11.2.3.1 Master computer reads the current status of weight transmitter

Format of send command:

STX	Scale ID	Channel ID	**R**	**WT**	**CRC**	**CR**	**LF**

Instrument response format after correct reception:

STX	Scale ID	Channel ID	**R**	**WT**	state	Display value	**CRC**	**CR**	**LF**

Instrument response format after error reception:

STX	Scale ID	Channel ID	**R**	**WT**	**E**	Error code	**CRC**	**CR**	**LF**

Instruction:

STX -- **1** byte, start character, **02H**

R -- **1** byte**, 52H**

WT -- **2** bytes**, 57H 54H**

E -- **1** byte**, 45H**

Status -- **2** bytes, high byte: Fixed at **40H**; Low byte the individual bits are

defined below

D7	D6	D5	D4	D3	D2	D1	D0
Undefined	Undefined	Undefined	Gross /Net weight	+/-	Zero	Overflow	Stable
Fixed **:0**	Fixed **:1**	Fixed **:0**	0**:** gross weight 1**:** net weight	**0:** positive **1:** negative	**0:** non-zero **1:** zero	**0:** Normal **1:** Overflow	**0:** Unstable **1:** Stable

Display value – **6** bytes unsigned number, returned as "space space **OFL** space" when weight positive (negative) overflows

Error codes -- see **Section 11.2.2** (Error Code description table)

Example instructions:

The master computer sends command: **02 30 31 31 52 57 54 30 31 0D 0A**

Correct response format: **02 30 31 31 52 57 54 40 41 30 30 33 37 35 33 33 36 0D 0A (stable state,** current weight is 3753**)**

Incorrect response format: **02 30 31 31 52 57 54 45 31 31 39 0D 0A (CRC check error)**

11.2.3.2 Calibrating zero

1) Calibrate zero with current weight (calibrated with weights)

Send command format:

STX	Scale ID	Channel ID	**C**	**ZY**	**CRC**	**CR**	**LF**

Instrument response format after correct reception:

STX	Scale ID	Channel ID	**C**	**ZY**	**O**	**K**	**CRC**	**CR**	**LF**

Meter response format after error reception:

STX	Scale number	Channel number	**C**	**ZY**	**E**	Error code	CRC	**CR**	**LF**

Instruction:

Z -- 1 byte**, 5AH**

Y -- 1 byte**, 59H**

For example:

The master computer sends the command: **02 30 31 31 43 5A 59 39 34 0D 0A**

Correct response format: **02 30 31 31 43 5A 59 4F 4B 34 38 0D 0A**

Error response format: **02 30 31 34 43 5A 59 45 36 32 30 0D 0A** (channel ID error)

2) Enter the millivolt to calibration zero in the appendix(calibration without weight)

Send command format:

STX	Scale ID	Channel ID	**C**	**ZN**	Zero millivolts	**CRC**	**CR**	**LF**

Instrument response format after correct reception:

STX	Scale number	Channel number	**C**	**ZN**	**O**	**K**	**CRC**	**CR**	**LF**

Instrument response format after error reception:

STX	Scale number	Channel number	**C**	**ZN**	**E**	Error code	**CRC**	**CR**	**LF**

Instruction:

ZN - 2 bytes**, 5AH 4EH**

Zero Point millivolts - **6** digits, entered zero millivolts (Fixed:**4** decimal points)

Examples:

The upper computer sends the command: **02 30 31 31 43 5A 4E 30 30 32 36 31 30 38 30 0D 0A**

Correct response format: **02 30 31 31 43 5A 4E 4F 4B 33 37 0D 0A**

Incorrect response format: **02 30 31 31 43 5A 4E 45 34 30 34 0D 0A** (write data error)

11.2.3.3 Gain calibration

1) Calibration with weights

Load a standard weight near **80%** of the capacity on the weighing platform (such as standard weight weight: **200**) and by this method write the

weight of the standard weight to complete the gain calibration.

Send command format :

STX	Scale ID	Channel ID	**C**	**GY**	Weight	**CRC**	**CR**	**LF**

Instrument response format after correct reception:

STX	Scale ID	Channel ID	**C**	**GY**	**O**	**K**	**CRC**	**CR**	**LF**

Instrument response format after error reception:

STX	Scale ID	Channel ID	**C**	**GY**	**E**	Error code	**CRC**	**CR**	**LF**

Instruction:

GY - **2** bytes**, 47H 59H**

Weight's weight -- **6** digits: The written weight of the standard weight.

For example:

The master computer sends the following command: **02 30 31 3143 47 59 30 30 30 32 30 30 36 35 0D 0A (**Write weight: 200**)**

Correct response format: **02 30 31 31 43 47 59 4F 4B 32 39 0D 0A**

Incorrect response format: **02 30 31 35 43 47 59 45 36 30 32 0D 0A** (channel ID error)

11.2.3.4 Read the absolute mV and relative mV

Send command format :

STX	Scale ID	Channel ID	R	**AM/RM**	**CRC**	**CR**	**LF**

Instrument response format after correct reception:

STX	Scale ID	Channel ID	R	**AM/RM**	+/-	**mV**	**CRC**	**CR**	**LF**

Instrument response format after error reception:

STX	Scale ID	Channel ID	**R**	**AM/RM**	**E**	Error code	**CRC**	**CR**	**LF**

Instruction:

STX -- **1** byte, start character, **02H**

R -- **1** byte**, 52H**

AM/RM -- **2** bytes**, 41H 4DH/52H 4DH**

E -- **1** byte**, 45H**

+/- -- 1 byte**, +：2BH；-：2DH**

mV—6 bytes, the absolute mV and relative mV

Error codes -- see **Section 11.2.2** (Error Code description table)

For example:

The master computer sends the following command: **02 30 31 31 52 41 4D 37 32 0D 0A**

Correct response format: **02 30 31 31 52 41 4D 37 32 0D 0A(**The current absolute millivolt is 66,269.**)**

Incorrect response format: **02 30 31 31 52 41 4D 45 31 39 30 0D 0A** (Checksum error)

11.2.3.5 Zero operation

Send command format :

STX	Scale ID	Channel ID	**O**	**CZ**	**CRC**	**CR**	**LF**

Instrument response format after correct reception:

STX	Scale ID	Channel ID	**O**	**CZ**	**O**	**K**	**CRC**	**CR**	**LF**

Instrument response format after error reception:

STX	Scale ID	Channel ID	**O**	**CZ**	**E**	Error code	**CRC**	**CR**	**LF**

For example:

The master computer sends the command: **02 30 31 31 4F 43 5A 38 34 0D 0A**

Correct response format: **02 30 31 31 4F 43 5A 4F 4B 33 38 0D 0A**

Incorrect response format: **02 30 31 31 4F 43 5A 45 35 30 36 0D 0A** (Operation cannot be performed)

11.2.3.5 **CRC** calculation

Add all the values before the check digit and convert them into decimal data, then the last two bits are converted to **ASCII** (tens bit first, ones bit second).

For example:

If you have the following frame of data:

02	**30**	**31**	**31**	**4F**	**43**	**5A**	**38**	**34**	**0D**	**0A**

Add the sum from 02 to 5A: **180** (**Hex**), converted to decimal **384.** From this, it can be calculated that the check codes for this data frame are **38**

and 34.

11.3 **tt Toledo protocol**

Communication parameters **Com-- N1-- N1.3 If tt protocol is selected,** the instrument **will send data in Toledo protocol continuous mode.**

The format of Toledo continuous transmission is as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
STX	**A**	**B**	**C**	Displayed weight **6** bits						**30H** checksums						**0D**	

Instruction: The starter is the standard **ASII** starter **02(STX)**

The status word **A** is defined as follows:

D0	**0**	**1**	**0**	**1**	**0**
D1	**1**	**1**	**0**	**0**	**1**
D2	**0**	**0**	**1**	**1**	**1**
Decimal point position	**x**	**.x**	**.xx**	**.xxx**	**.xxxx**

Note: **D3 D4 D6** is **0**(fixed)**D5** is **1**(fixed)

The status word **B** is defined as follows:

D6	D5	D4	D3	D2	D1	D0
Meter status	**1**	**1**	Steady state	Overflow state	Symbols	Gross/net weight status
0 fixed	fixed	fixed	**1:** stable **0:** unstable	**1:** Overflow **0:** Normal	**1:** negative **0:** positive	0**:** gross weight 1**:** net weight

State **C** is backup state, temporarily useless, fixed output **20H**.

11.4 **Cb920 Protocol**

Com--N1--N1.3 Select Cb920. In this mode, no command needs to be sent to the instrument. The instrument will send data in Cb920 continuous mode.

The format of the data frame is as follows:

Status	,	Gross weight	**0/1**	Symbols	Display values	Units	CR	LF

Among them:

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

US(unstable**)** : **55H 53H**

, -- **1** byte, delimiter **2CH**

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

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

Symbols **-- 1** byte**, 2BH (+), 2DH (--)**

Display value -- **7** bytes, including decimal point: Take the instrument display value

Unit -- **2** bytes**, kg:6B 67; g:20 67 ; t:20 74; lb:6C 62 ;**

CR - 1 byte, **0DH**

LF -- 1 byte, **0AH**

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

53 54 2C 47 53 31 2B 20 20 31 39 30 2E 31 20 67 0D 0A

The current instrument status is stable, gross weight, data value is positive, and current weight value is 190.1g.

11.5 **rECont protocol**

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

Return data frame format description:

Status	,	**GS/NT**	,	+ / -	Display value	Units	**CR**	**LF**
2 bits	**2C**	**47 53/4E 54**	**2C**	**2B/2D**	**7** bytes	**6B 67**	**0D**	**0A**

Where:

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

US(unstable):**55H 53H**

Display value **- 7** bytes, including the decimal point, no decimal point for the high byte

For example:

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

53 54 2C 47 53 2C 2B 30 31 31 2E 31 32 30 6B 67 0D 0A

can see that the current status is stable, the data value is positive, and the display value is **11.120kg**

11.6 **rEREAD protocol**

The weighing display in this mode will only send the current data to the master machine when it receives the command. Format of data frame sent by the master computer to the monitor:

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

Master computer sends command: **52 45 41 44 0D 0A**

The data frame returned by instrument response is consistent with the data frame returned by **rECont** protocol, refer to **rECont** return data frame description.

Send zero command format: **ZERO ON<CR><LF>**

The master computer sends the command **5A 45 52 4F 20 4F 4E 0D 0A**

Return **YES<CR><LF>** or **NO? <CR><LF>**

Send zero calibration command format: **TARE ON<CR><LF>**

The master computer send command: **54 41 52 45 20 4F 4E 0D 0A**

Return **YES<CR><LF>** or **NO? <CR><LF>**

Send read **ID** number command format: **GET ID<CR><LF>**

The master computer sends the command: **47 45 54 20 49 44 0D 0A**

Return the **ASCII** code as a **6-digit ID** number

11.7 **PT650D Protocol**

Communication parameters **Com--N1-- N1.3 When PT650D** protocol is **selected**, the data frame format (N1.4) is automatically adjusted to **7-E-1** and the baud rate **(N1.2)** is automatically adjusted to **9600 (**and only **2400**, **4800**, **9600 and 19200** are optional).

In this protocol mode, the data is output in **ASCII** code, and the data format is as follows:

Return the data frame format description:

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	0	L	,	N	T	,	Sign	1	2	3	4	.	5	7	k	g	CR	LF

Note:

No.1,2 -- State 1: **OL(overflow)**:4F 4C**; ST(stable display)**:53 **54**; **US(unstable** display**): 55 53**

No.3 -- ", "**2C** (**HEX**)

No.4,5 -- State 2: **GS(gross weight)** : 47 **53**; **NT(net weight) : 4E** 54

No.6 -- ", "**2C** (**HEX**)

No.7 -- symbol: "+" (positive) : **2B**; "-" (negative) : **2D**

No.8-14 -- Weighing value: If there is no decimal point, output a space at **No.8**; The overflow state reads **999999**

No.15-16 -- Unit: **kg:6B 67; g:20 67 ; t:20 74; lb**:**6C 62**;

No.17-18 -- Control code: **CR: 0D**; **LF: 0A**

11.8 **Yh protocol**

Communication parameters **Com--N1--N1.3** When **Yh** protocol is selected, the data frame format (M1.4) is automatically adjusted to **8-n-1** and the baud rate **(M1.2**) is automatically adjusted to 1200. The communication interval time **(M2.6)** is automatically adjusted to 50ms**.**

Under this protocol, data is output in **ASCII** code, and each frame data is composed of **9** groups (including the decimal point). Data transmission first low and then high, each frame data between a group is the separator "=", send data for the 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

Note:

If the high bit no number, then fill **0**, the decimal point is **1** byte, and Bit8 is a negative sign "-" when it is negative.

Return: **3D 39 2E 33 32 31 30 30**.

11.9 **WI-125** Protocol

Communication parameters **Com-- N1-- N1.3** When WI-125 is selected,

the baud rate **(N1.2)** is automatically set to 9600 (and only 2400, 4800, 9600, and 19200 are optional). Mode, you do not need to send any command to the meter. The meter will send data in the following format.

Data frame format:

Start character	State	Display weight value	Space	Unit	Space	**CR**	**LF**

Note:

Start character **-- 0x20**

Status -- **1** byte, **G (**gross weight**): 47H; N (**net weight**):4EH**

Display weight - **8** bytes, including plus or minus sign and decimal point, the first sign is plus or minus sign, plus sign is not displayed, positive number is **20H**; **-- : 2DH;**

Space -- **0x20**

Unit -- **2** bytes**, kg:6B 67; g:67 20; t: 74 20; lb:6C 62;**

CR - **1** byte, **0DH**

LF -- **1** byte, **0AH**

11.10 BR Protocol

Communication parameters Com—>N1—> N1.3 When the BR-Send/BR-Cmd protocol is selected, the data frame format (N1.4) is automatically adjusted to 7-E-1(fixed, unmodifiable), and the baud rate (N1.2) is automatically adjusted to 9600 (modifiable). In this mode, the weighing display only sends the current data to the upper computer when it receives a command.

11.10.1 BR-Send **Protocol**

The format of the continuously received data frames in the BR-Send (Continuous Response Mode) protocol is as follows:

1） The data frame format (hexadecimal) of the weight data continuously sent by the controller to the host computer:

Addr.	X/Y/**E**	+/-	Display value	Unit	**0x00**	**0x0D**

Addr. ——1 byte, indicating the address of the local machine;

X/Y/E——1 byte, Return data flag ,X (0x58) indicates unstable current weight, Y (0x59) indicates stable current weight, E (0x45) indicates weight overflow.

+/-——1 byte, indicating positive (0x2B) or negative (0x2D) of the weight display value;

Display value——6 bytes/7 bytes, representing the weight display value. If the weight value does not have a decimal point, it only has six bytes (the seventh byte is 0x20), otherwise it has seven bytes.

Unit——2 bytes, kg: 0x6B 0x67; g: 0x67 0x20; t: 0x74 0x20; lb: 0x6C 0x62;

0x00——1 bytes,Communication identification code, fixed as 0x00

0x0D——1 bytes, return character.

Note: The BR-Send protocol (continuous response mode) still displays the real-time value when the weight overflows and does not follow the instrument to display OFL.

2） The format of the data frame (hexadecimal) sent by the upper computer to the controller for zeroing:

First Send:

Addr.**+1**	**0x05**

Second Send:

0x5A	**0x31**	**0x0D**

For example, the data frame format (hexadecimal) sent by the upper computer to the controller with address 48 (decimal) for zeroing is sent in two batches. The first batch is sent as 0x31 0x05, and the second batch is sent as 0x5A 0x31 0x0D.

3) The format of the data frame (hexadecimal) sent by the upper computer to the controller for tare:

First Send:

Addr.**+1**	**0x05**

Second Send:

0x54	**0x31**	**0x0D**

For example, the data frame format (hexadecimal) sent by the upper computer to the controller with address 48 (decimal) for zeroing is sent in two batches. The first batch is sent as 0x31 0x05, and the second batch is sent as 0x54 0x31 0x0D.

4) The format of the data frame (hexadecimal) sent by the upper computer to the controller for clearing tare:

First Send:

Addr.+1	0x05

Second Send:

0x54	0x30	0x0D

For example, the data frame format (hexadecimal) sent by the upper computer to the controller with address 48 (decimal) for zeroing is sent in two batches. The first batch is sent as 0x31 0x05, and the second batch is sent as 0x54 0x30 0x0D.

11.10.2 BR-Cmd Protocol

The data frame formats sent and received by the BR-Cmd (Command Mode) protocol are as follows

1）The format of the data frame (hexadecimal) for the weight data sent by the upper computer to the display:

Addr.	0x05

For example, the data frame format for the weight data sent by the upper computer to the monitor with address 48 (decimal) is 0x30 and 0x05.

The data frame format (hexadecimal) of the weight data continuously sent by the controller to the upper computer

Addr.	X/Y/E	+/-	Display value	Unit	0x00	0x0D

Addr. ——1 byte, indicating the address of the local machine;

X/Y/E——1 byte, Return data flag ,X (0x58) indicates unstable current weight, Y (0x59) indicates stable current weight, E (0x45) indicates weight overflow.

+/-——1 byte, indicating positive (0x2B) or negative (0x2D) of the weight display value;

Display value——6 bytes/7 bytes, representing the weight display value. If the weight value does not have a decimal point, it only has six bytes (the seventh byte is 0x20), otherwise it has seven bytes.

Unit——2 bytes, kg: 0x6B 0x67; g: 0x67 0x20; t: 0x74 0x20; lb: 0x6C 0x62;

0x00——1 bytes,Communication identification code, fixed as 0x00

0x0D——1 bytes, return character.

Note: In the BR-CMD protocol (command mode), when the weight overflows, the real-time value is still displayed and the OFL is not shown following the instrument.

2）The format of the data frame (hexadecimal) sent by the upper computer

to the controller for zeroing:

First Send:

Addr.+1	0x05

Second Send:

0x5A	0x31	0x0D

For example, the data frame format (hexadecimal) sent by the upper computer to the controller with address 48 (decimal) for zeroing is sent in two batches. The first batch is sent as 0x31 0x05, and the second batch is sent as 0x5A 0x31 0x0D.

3) The format of the data frame (hexadecimal) sent by the upper computer to the controller for tare:

First Send:

Addr.+1	0x05

Second Send:

0x54	0x31	0x0D

For example, the data frame format (hexadecimal) sent by the upper computer to the controller with address 48 (decimal) for zeroing is sent in two batches. The first batch is sent as 0x31 0x05, and the second batch is sent as 0x54 0x31 0x0D.

4) The format of the data frame (hexadecimal) sent by the upper computer to the controller for clearing tare:

First Send:

Addr.+1	0x05

Second Send:

0x54	0x30	0x0D

For example, the data frame format (hexadecimal) sent by the upper computer to the controller with address 48 (decimal) for zeroing is sent in two batches. The first batch is sent as 0x31 0x05, and the second batch is sent as 0x54 0x30 0x0D.

11.11 Modbus Protocol

11.11.1 **MODBUS** Function Code and Exception Code

Function code supported by instrument:

Function	Name	Instructions

code		
03	Read register	Up to 125 registers can be read at a time
06	Write a single register	Use this function code to write a single hold register.
16	Write multiple registers	This command only supports writing to double registers, the address must be aligned when writing, only part of the double register is not allowed to be written, and read only part is allowed when reading.
01	Read coil	Note that this length is in bits
05	Write coil	

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

MODBUS Exception code responds

Code	Name	Meaning
02	Illegal data address	For the purposes of this instrument, this error code means that the received data address is not allowed.
03	Illegal data values	The portion of data written and the allowable range.
04	Slave machine failure	An unrecoverable error occurs when the instrument is attempting to perform the requested operation.
07	Unsuccessful programmin g request	For instrument, the command received cannot be executed under the current conditions.

11.11.2 **MODBUS Communication** Address

Functional address	**PLC** address	Meaning	Instructions	
The following is readable (read function code 0x03)				
0000-0001.	**40001-40002.**	Weight status	Currently displayed Weight, signed, integer type	
0002	**40003**	Weight Status flag bit **1**	bit	Instructions
			D4-15	Reserve, return **0**
			D3	Overflow
			D2	Show weight minus sign, (displayed weight is negative)
			D1	Zero point (weight in the

				range of **0±1/4 d**)
			D0	Stable (sign of stability for weight judgment)
0003	**40004**	Reserved		
0004	**40005**	Error code Flag **1** **(**Alarm **2s** then end**)**	**D15**	Calibration error (calibration unstable or overflow)
			D14	AD fault
			D13	Reserved
			D12	Perform remote calibration when protected
			D11	When calibrating, the input calibration lock is valid, under protection
			D10	The previous weight point is not calibrated
			D9	Exceeding minimum resolution (less than 0.01uV per division)
			D8	Weight input exceeds maximum capacity
			D7	Weight input cannot be zero
			D6	The weight calibration is less than zero or the previous calibrate point
			D5	Loadcell positive overflow during weight calibration
			D4	Loadcell negative overflow during weight calibration
			D3	Weight calibration is unstable
			D2	Loadcell positive overflow during zero calibration
			D1	Loadcell negative overflow during zero calibration

			D0	Zero Calibration unstable
0005	**40006**	Error Code Flag **2 (**Alarm **2s** clears automatic-ally**)**	**D13-D15**	Reserved
			D12	Forced zeroing is out of range
			D11	Does not allow taring in net weight status
			D10	Weight is negative when taring
			D9	Loadcell positive overflow when taring
			D8	Loadcell negative overflow when taring
			D7	Unstable when taring
			D6	Can't zero in net weight status
			D5	Loadcell positive overflow when zeroing
			D4	Loadcell negative overflow when zeroing
			D3	Unstable when zeroing
			D2	Zero out of range
			D1	Power-on zero unstable
			D0	Power on zero out of range
0006	**40007**	Process status flag bit **1**	**D4-15**	Reserve, return **0**
			D3	Preset point **4** state
			D1	Preset point **3** state
			D1	Preset point **2** state
			D0	Preset point **1** state
0007-0009.	**40008-40010**	Reserved		
0010-0011.	**40011-40012**	Gross weight (**4** byte signed integer)		
0012-0013.	**40013-40014**	Net weight (**4** bytes signed integer)		
0014-0015.	**40015-40016**	Tare weight(**4** bytes signed integer)		
0016-0017.	**40017-40018**	Displayed weight(signed floating-point type)		
0018-0019.	**40019-40020**	Gross weight(**4**-byte signed floating-point)		
0020-0021.	**40021-40022**	Net weight(**4**-byte signed floating point)		
0022-0023.	**40023-40024**	Tare weight (**4**-byte signed floating point)		
0024-0029.	**40025-40030**	Reserved		

0030-0031.	**40031-40032**	Analog output millivolts (not including millivolt in analog calibration state), **3** decimal points	
0032-0033.	**40033-40034**	Loadcell absolute voltage value, integer, 4 decimal points	
0034-0035.	**40035-40036**	Relative zero voltage value, integer, 4 decimal points	
0036-0037.	**40037-40038**	The filtered AD code, the AD code used for weight calculation, integer, range **0** to **16777215**	
0038-0049.	**40039-40050**	Reserved	
Basic parameter area, the following is readable and writable (read function code 0x03, write function code 0x06)			
0050-0051.	**40051-40052**	PWR-On Zero Range	Initial value: **0** Range: **0 to 100% (full capacity)** **0:** disables the power-on zero function **1-100:** Power-on zero based on capacity of **1-100%** **101**: Restore the last zero point before shutdown.
0052-0053.	**40053-40054**	TrZero Range	Initial value: **0**; Range: **0 to 99d**
0054-0055.	**40056-40057**	Zero Range	Initial value: **20;** Range: **0** to **99%** (full capacity)
0056-0057.	**40058-40059**	STAB Range	Initial value: **1**; Range: **0 to 99d, 0** means disable stable judge function
0058-0059.	**40060-40061.**	Digital filter level	Initial value: **4**; Range: **0 to 9**
0060-0061.	**40062-40063**	Stable state filter	Initial value: **0**; Range: **0 to 99d**
0062-0063.	**40064-40065**	**AD** Sampling rate	Initial value: **4**; Range: **0** to **5**; Corresponding to **0:30 seconds/time,** **1:60 seconds/time,** **2:120 seconds/time,** **3:240 seconds/time,** **4:480 seconds/time,** **5:960 seconds/time,**
0064-0065.	**40066-40067**	Tare record function	Initial value: **0**; Range: **0: OFF**; **1: ON**

		switch	
0066-0067	**40067-40068**	TrZero Time	Initial value:：**1000**； Range：**1~5000ms**
0068-0069	**40069-40070**	STAB Timer	Initial value:**1000**； Range：**1~5000ms**
0070-0071	**40071-40072**	Force Zero Threshold	Initial value:**1**；Range：**1~999999**
0072-0073	**40073-40074**	Force Zero Time	Initial value:：**3**； Range：**1~20s**
0074-0075	**40075-40076**	Force Zero Switch	Initial value:**0**；Range：**0：OFF**；**1：ON**
0076-0077	**40077-40078**	Signal range	Initial value: 2 Range: 0-5 Corresponding to **0:0 -5mV; 1:0 -10mV 2:0-15 mV, 3:5-5 mV; 4: -10-10mV 5: -15-15mV**
0078-0099	**40079-40100**	Reserved	
Calibration parameter area, the following is readable and writable (read function code 0x03, write function code 0x06)			
0100-0101	**40101-40102**	Unit	Initial value: **1**; Range: **0:t, 1: kg, 2 g, 3: lb**
0102-0103	**40103-40104**	Decimal point	Initial value: **0:0**; Range: **0:0**; **1:0.0; 2:0.00**; **3:0.000.**
0104-0105	**40105-40106**	Division	Initial value: **1**; Range: **1/2/5/10/20/50d**
0106-0107	**40107-40108**	Capacity	Initial value: **10000**; Range: 1 to 999999
0108-0109	**40109-40110**	Auto calibrate zero point	Write: **1** perform zero calibration, automatically obtain loadcell voltage to calibration zero; Read: the current loadcell voltage value
0110-0111	**40112-40113**	Manual Calibrate zero	**0-150000(**4 **decimal** points), Write: Write voltage as zero voltage; Read: The voltage of the current zero)
0112-0113	**40114-40115**	CAL Point**1**	Write: write the weight to the calibrate calibration weight

			point **1** ; Read: Get relative voltage 1 when reading (zero voltage)
0114-0115	**40116-40117**	CAL Point **2**	Write: write the weight to calibrate calibration weight point **2** ; Read: get the relative voltage value 2 when reading (The voltage of calibration point 1)
0116-0117	**40118-40119**	CAL Point **3**	Write: write the weight value to the calibrate the calibration point **3**; Read: get the relative voltage value 2 when reading(The voltage of calibrate point 2)
0118-0119	**40120-40121**	CAL Point **4**	Write: write weight value to calibrate the calibration point **4**; Read: get relative voltage value 2 when reading (The voltage of calibrate point 3)
0120-0121	**40121-40122**	CAL Point **5**	Write: Write the weight value to calibrate the calibration point **5**, Read: get the relative voltage value 2 when reading (The voltage of calibration point 4)
0122-0123	**40123-40124**	Loadcell sensitivity	Write: Use the sensitivity value of the loadcell; Read: Sensitivity value set last time (**4** decimal points)
0124-0125	**40125-40126**	Total Capacity	Input the sum of all loadcell capacities.
0126-0127	**40127-40128**	Use T-CAL	**0**: Turn off the theoretical weight function and use the calibration data **1**: Calculate weight by using theoretical value
0128-0129	**40129-40130**	D	Write coefficient to correct the calibration, Fixed: **5** decimal points
0130-0131	**40131-40132**	Division	Initial value: 1 Range:

		value2	1,2,5,10,20,50
0132-0133	**40133-40134**	Range2	Initial value: 10,000 Range: Division value * 1,000,000
0134-0135	**40135-40136**	Division value3	Initial value: 1 Range: 1,2,5,10,20,50
0136-0137	**40137-40138**	Range2	Initial value: 10,000 Range: Division value * 1,000,000
0138-0149.	**40139-40150.**	Reserved	
Apply parameter area, the following is readable and writable (read function code 0x03, write function code 0x06)			
0150-0151	**40151-40152**	Input**1** function	Parameters range: **0-11**, **0**-None, 1- SP1; 2- SP 2; 3-SP3; 4- SP4; 5- Zero; 6-Reset Parameter ; 7-Tare/Clear Tare; 8- Tare; 9- Clear Tare; 10-Calibration lock; 11-Print; 12- Gross/ Net weight switch; Initial value: **0**
0152-0153	**40153-40154**	Input **2** Function	
0154-0155	**40155-40156**	Input **3** Function	
0156-0157	**40157-40158**	Input **4** Function	
0157-0169	**40158-40170**	Reserved	
0170-0171	**40171-40172**	Output **1** Function	Parameters range: **0-6**, corresponding to: **0**-None; **1**- SP1; **2**-SP2; **3**-SP3; **4**- SP4; **5**-Stable; **6**-Overflow; Initial value: **0**
0172-0173	**40173-40174**	Output **2** Function	
0174-0175	**40175-40176**	Output **3** Function	
0176-0177	**40177-40178**	Output **4** Function	
0178-0179	**40179-40180**	Output **5** Function	
0180-0181	**40181-40182**	Output **6** Function	
0182-0189	**40183-4090**	Reserved	
0190-0191	**40191-40192**	SP**1** Whether to judge stable	Whether to judge the weight stability, Range: **0:OFF**, no need to judge the stability; **1:ON,** need to judge the stability; Initial value: **0:OFF**
0192-0193	**40193-40194**	SP**1** Minimum duration	Range: **0-999** (unit **0.1s**); Initial value: **0.**2s
0194-0195	**40195-40196**	SP**1** Valid condition	Range**: 0-9**, 0-off, 1-weight less than, 2-weight less than or equal to, 3-weight equal to, 4- weight

			greater than or equal to, 5-weight greater than, 6-weight not equal to, 7-weight not between, 8-weight between, 9-external trigger; Initial value: 1
0196-0177	**40197-40198**	SP**1** Set value 1	Compare value **1**, signed number, Range：**-99999-999999**; Initial value: **0**
0198-0199	**40199-40200**	SP**1** sets the value 2	Compare value **2**, signed number, Range:**-99999-999999**, initial value: **0**; Used when two comparison values are needed, this value is greater than the comparison value of 1
0200-0209	**40201-40219**	Reserved	
0210-0211	**40211-40212**	SP**2** Whether to judge stable	Refer to the PLC address 40191-40200 Preset point 1 function description
0212-0213	**40213-40214**	SP**2** Minimum duration	
0214-0215	**40215-40216**	SP**2** Valid condition	
0216-0217	**40217-40218**	SP**2** Set value 1	
0218-0219	**40219-40220**	SP**2** Set value 2	
0220-0229	**40221-40230**	Reserved	
0230-0231	**40231-40232**	SP**3** Whether to judge steady	Refer to the PLC address 40191-40200 Preset point 1 function description
0232-0233	**40233-40234**	SP**3** minimum duration	
0234-0235	**40235-40236**	SP**3** Valid condition	
0236-0237	**40237-40238**	SP**3** Set value 1	
0238-0239	**40239-40240**	SP**3** Set value 2	
0240-0249	**40241-40250**	Reserved	
0250-0251	**40251-40252**	SP**4** Whether to judge stable	Refer to the PLC address 40191-40200 Preset Point 1 function description
0252-0253	**40253-40254**	SP **4** minimum duration	

0254-0255	**40255-40256**	SP**4** Valid condition	
0256-0257	**40257-40258**	SP**4** Set value 1	
0258-0259	**40259-40260**	SP**4** Set value 2	
0260-0299	**40261-40300**	Reserved	
Communication parameter setting area, the following contents are readable and writable (read function code 0x03, write function code 0x06)			
0300-0301.	**40301-40302**	RS485_1 Slave ID	Slave ID of serial port 0; Range: 01-99
0302-0303.	**40303-40304**	RS485_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;
0304-0305.	**40305-40306**	RS485_1 Communication Protocol	Initial value: 0-Modbus RTU**,** Range: 0-Modbus RTU, 1-r-Cont**,** 2-r-SP1**,** 3-tt**,** 4-Cb920, 5-rE-Cont, 6-rE-rEAd, 7-Pt650D, 8-YH, 9-Print(print), 10-WI-125, **11** BR-Cmd、12-BR-Send
0306-0307.	**40307-40308**	RS485_1 data format	Initial value: 1 (8E1); Range: 0-8N1, 1-8E1, 2-8O1, 3-7E1, 4-7O1
0308-0309.	**40309-40310**	RS485_1 double word mode	Initial value :0 (AB-CD) Range :0 :AB-CD, 1:CD-AB.
0310-0311.	**40311-40312**	RS485_1 Continuous send interval	Initial value: 20ms, range: 0-1000ms
0312-0313.	**40313-40314**	Tollido Protocol whether to send checksums	Initial value: 0, range: 0:OFF, do not send, 1:ON, send
0314-0319.	**40315-40320**	Reservations	
0320-0321.	**40321-40322**	RS485_2 Slave ID	Refer to RS485_1 parameters
0322-0323.	**40323-40324**	RS485_2 baud rate	

0324-0325.	**40325-40326**	RS485_2 Communication Protocol	
0326-0327.	**40327-40328**	RS485_2 data format	
0328-0329.	**40329-40330**	RS485_2 double word mode	
0330-0331.	**40331-40332**	RS485_2 Continuous Send interval	
0332-0333.	**40333-40334**	Tollido Protocol whether to send checksums	
0334-0339.	**40335-40340**	Reserve	
0340-0341.	**40341-40342**	RS232 Slave ID	Refer to RS485_1 parameters
0342-0343.	**40343-40344**	RS232 baud rate	
0344-0345.	**40345-40346**	RS232 Communication Protocol	
0346-0347.	**40347-40348**	RS232 data format	
0348-0349.	**40349-40350**	RS232 double word mode	
0350-0351.	**40351-40352**	RS232 Continuous send interval	
0352-0353.	**40353-40354**	Tollido protocol whether to send checksums	
0354-0359.	**40355-40360**	reserve	
0360-0361.	**40361-40362**	Network port communication mode	Initial value: 0 Range: 0 to 10 0: Modbus, 1: GM-Cont, 2: r-SP1, 3: tt, 4: CB920, 5: rECont, 6: rEREAD, 7: PT650D, 8: WI-125, 9: BRCMD, 10: BRSEND
0362-0363.	**40363-40364**	Network port double word mode	Range: 0-AB-CD, 1-CD-AB This parameter can be set when the communication

			mode is 0: Modbus/TCP
0364-0365.	**40365-40366**	Network port sending interval	Communication mode**:** 1: GM-Cont/TCP. This parameter is used to set the interval for continuous transmission. Initial value: 20ms, range 0-1000ms
0366-0367.	**40367-40368**	Local port ID	Initial value: 502, range: 0-65535, set the network communication port number
0368-0375.	**40369-40376**	Network port local IP segment	Initial value: 192.168.000.100, part 1 to Part 4 IP in order
0376-0377.	**40377-40378**	Data Type	Range: 0-2, 0-int wt-integer weight, 1-flo wt-floating point weight; Default: **1**
0378-0379.	**40379-40380**	Write switch	0-OFF, 1-ON
0380-0381	**40381-40382**	Site alias	Initial value: 0 Range: 0-65535
0382-0383	**40383-40384**	Network port TT checksum switch	Initial value: 0: OFF Range: 0-1 (corresponding to 0: OFF; 1: ON)
0384-0389	**40385-40390**	reserve	
0390-0391	**40391-40392**	Print language	Range: **0**: **CHn-** Chinese **1**: **En-** English; Initial value: **En-** English
0392-0393	**40393-40394**	Print Content	Initial value: **0-** Displayed weight; Range: **0-6**, optional: **0-** Displayed weight, **1-** gross weight, **2-** net weight, **3-** Net weight + tare (two rows), **4-** Gross weight + Net weight + Tare) (three rows)
0394-0395	**40395-40396**	Print interval	Range: **0-99**, number of lines per print interval; Initial value: **2**

0396-0399	**40397-40400**	Reserve	
Analog calibration area address, readable and written (read function code 0x03, write function code 0x06)			
0400-0401	**40401-40402**	Enter/exit analog calibration	Range: **0-2**, write: **0:** exit remote analog calibration state; **1**: remote current calibration; **2**: remote voltage calibration.
0402-0403	**40403-40404**	Current calibration Point **1** digital code	Digital code range: **0-65535** write: Output current in real time according to DA code written. Available only in current calibration mode. Current value range: **0-24000**, write the measured current value (need to write **DA** code first, otherwise cannot be written), complete the current calibration of the corresponding point, then **DA** code and current value take effect. Available only in current calibration mode.
0404-0405	**40405-40406**	Current calibration point **1** current value	
0406-0407	**40407-40408**	Current calibration Point **2** digit code	
0408-0409	**40409-40410**	Current calibration point **2** current value	
0410-0411	**40411-40412**	Current calibration Point **3** digit code	
0412-0413	**40413-40414**	Current calibration point **3** current value	
0414-0415	**40415-40416**	Current calibration Point **4** digit code	
0416-0417	**40417-40418**	Current calibration point **4** current value	
0418-0419	**40419-40420**	Current calibration point **5** digit code	
0420-0421	**40421-40422**	Current calibration point **5** current value	
0422-0423	**40423-40424**	Voltage calibration point **1** digit code	Range: **0-65535**, Write: Output voltage in real time according to DA code written. Available only in
0424-0425	**40425-40426**	Voltage	

		calibration point **1** Voltage value	voltage calibration mode. Range: **0-10000**, write the measured voltage value (need to write DA code first, otherwise cannot be written), complete the voltage calibration of the corresponding point. Available only in voltage calibration mode.
0426-0427	**40427-40428**	Voltage calibration point **2** digit code	
0428-0429	**40429-40430**	Voltage calibration point **2** voltage value	
0430-0431	**40431-40432**	Voltage calibration point **3** digit code	
0432-0433	**40433-40434**	Voltage calibration point **3** Voltage value	
0434-0435	**40435-40436**	Voltage calibration point **4** digit code	
0436-0437	**40437-40438**	Voltage calibration point **4** voltage value	
0438-0439	**40439-40440**	Voltage calibration point **5** digit code	
0440-0441	**40441-40442**	Voltage calibration point **5** voltage value	
0442-0459	**40443-40460**	Reserve	
0460-0461	**40461-40462**	Analog Type	Initial value: **0**; Range: **0:4-20mA**; **1:0-10V**; 2: **user defined current;** 3: **user-defined voltage**
0462-0463	**40463-40464**	Analog minimum current/voltage	Range **0-10000** or **0-24000**, default **0**. Valid for user defined current/voltage, otherwise the read is all **0**, and the write is invalid
0464-0465	**40465-40466**	Zone Zero current/voltage	Range **0-10000** or **0-24000**, initial value **0**. Valid for user defined current/voltage, both reads are **0**, write is

			invalid
0466-0467	**40467-40468**	Range current/voltage	Range **0-10000** or **0-24000**, initial value: **24000/10000**. Valid for user defined current/voltage, all reads are **0**, write is invalid
0468-0469	**40469-40470**	Maximum flow/voltage analog output	Range: **0-10000** or **0-24000**, initial value: **24000/10000**. Valid for user defined current/voltage, all reads are **0**, write is invalid
0470-0499	**40471-40500**	Reserve	
Function operation class address area (corresponding coil function), read-write (read function code: 0x03; Write function code: 0x06)			
0500-0501	**40501-40502**	Calibrate zero	Write **1:**Perform the corresponding operation Read: 0
0502-0503	**40503-40504**	Zero	
0504-0505	**40505-40506**	Tare	
0506-0507	**40507-40508**	Clear Tare	
0508-0509	**40509-40510**	Gross/net weight switch	
0510-0511	**40511-40512**	Print	
0512-0519	**40513-40520**	Reserve	
0520-0521	**40521-40522**	Reset all parameters	Write **1** Perform the corresponding reset operation Read:0
0522-0523	**40523-40524**	Calibration parameter reset	
0524-0525	**40525-40526**	Apply parameter reset (in addition to calibration parameters)	
0526-0529	**40527-40530**	Reserve	
0530-0531	**40531-40532**	Display backlight level	Parameters range: **0-2, 0-low, 1-mid, 2-high,** Default: **1**
0532-0533	**40533-40534**	Net Weight Indicator Light definition (Definable communication)	Parameter range: **0-4**, **0-COM**1, **1- COM**2, **2-COM**3, **3-network port**, 4- **Net weight**, Default value: 4

0534-0535	**40535-40536**	Communication Indicator Light **1** Define	Parameters: 0-3**. 0-COM**1, **1- COM**2, **2-COM**3, **3-network port**, **Default value: 0**
0536-0537	**40537-40538**	Communication Indicator Light **2** Define	Parameters: 0-3**. 0-COM**1, **1- COM**2, **2-COM**3, **3-network port. Default value: 3**
0538-0539	**40539-40540**	Reserve	
I/O test parameters, (523x) Remote test switch can read and write when turned on, otherwise read only			
0540-0541.	**40541-40542.**	**I/O** test switch	Parameter range: **0-1**, 0**:** exit I/O **test** mode, 1: **enter** serial port IO test **mode**, after test,close it, the instrument can enter the normal state.
0542-0543.	**40543-40544.**	Input**1** Test	Reading **0** means no input, and reading **1** means there is input. Writing any value is invalid, (only valid in **IO** test mode)
0544-0545.	**40545-40546.**	Input **2** Test	
0546-0547.	**40547-40548.**	Input **3** Test	
0548-0549.	**40549-40550.**	Input **4** Test	
0550-0559.	**40551-40560.**	Reserve	
0560-0561.	**40561-40562.**	Output **1** Test	Range: **0-1**, write: **0**: Turn off output, **1**: Turn On output (valid only in **IO** test mode), read: current **IO** port status, **0**: off, **1**: on
0562-0563.	**40563-40564.**	Output **2** Test	
0564-0565.	**40565-40566.**	Output **3** Test	
0566-0567.	**40567-40568.**	Output **4** Test	
0568-0569.	**40569-40570.**	Output **5** Test	
0570-0571.	**40571-40572.**	Output **6** Test	
0572-0599.	**40573-40600.**	reserve	
Instrument system information area, read only area			
10000	**410001**	Software version (high word)	
10001	**410002**	Software version (low word)	If read **10000**, it is 01.00.00 version
10002	**410003**	Compile time (year)	
10003	**410004**	Compile time (month day)	
10004-10016.	**410005-410017.**	Instrument serial number **13** characters	
10017-10028.	**410018-410029.**	Instrument code **12** characters	
10029	**410030**	Reserved	

10030-10035.	**410030-410036.**	Instrument model character **6** characters, **GMT-H2**	
10036-10099.	**410037-410100.**	Reserved	
10100-10105.	**410101-410106.**	The meter's **MAC** six-segment address,	
10106-10119.	**410107-410120.**	Reserve	
10120	**410121**	Attach Board **01** Info	
10121	**410122**	Calibration parameter remote editing	
10122	**410123**	Remote editing of communication parameters (except calibration parameters)	
10123-10199.	**410124-410200.**	Reserve	
Coil address			
0000	**00001**	Calibrate zero	The contents are readable and writable coils, Write **ON** to perform corresponding operations Read:0
0001	**00002**	Zero	
0002	**00003**	Tare	
0003	**00004**	Clear Tare	
0004	**00005**	Gross/net weight switch	
0005	**00006**	Print	
0006-0009	**00003-00010**	Reserved	
0010	**00011**	Reset all parameters	This area is written only Write **ON** to perform the reset operation Read:0
0011	**00012**	Calibration parameter reset	
0012	**00013**	Apply parameter reset (Except calibration parameters)	
0013-0019	**00014-00020**	Reserved	
0020	**00021**	Input **1** status	Read-only area Returns each input port status bit **0**: invalid; **1** valid
0021	**00022**	Input **2** status	
0022	**00023**	Input **3** status	
0023	**00024**	Input **4** Status	
0024-0029	**00025-00030**	Reserve	
0030	**00031**	Output **1** status	Read-only area Return each port status bit **0**: invalid; **1** valid
0031	**00032**	Output **2** status	
0032	**00033**	Output **3** status	
0033	**00034**	Output **4** status	
0034	**00035**	Output **5** status	
0035	**00036**	Output **6** status	

0036-0039.	**00037-00040.**	Reserve	
0040	**00041**	SP**1** status	Read only parameter area, Returns each port status bit **0**: invalid; **1** valid
0041	**00042**	SP**2** state	
0042	**00043**	SP**3** status	
0043	**00044**	SP**4** status	
0044-0049.	**00045-00050.**	Reserve	
0050	**00051**	Calibrate parameter remote editing	Read-only, whether to allow remote editing, **1:** on, **0:** off
0051	**00052**	Remote editing of communication parameters (except calibration parameters)	
0052-0049.	**00053-00060.**	Reserve	

Chapter 12 Network Port Communication

GMT-H2 is configured with a network communication interface, which is connected with the **RJ-45** crystal head to realize the communication with the master computer or **PLC**.

The **IP** addresses of network ports must be set in communication parameters **N4.5** to N4.8. If the **IP** address of the network port **is 192.168.101.106**, input **192** for **N4.5**, **168** for **N4.6**, **101** for **N4.7**, and 106 for **N4.8;** The **port number** is **entered in N4.4**.

The network port supports GMCont protocol, r-SP1 protocol, tt Toledo protocol, Cb920 protocol, rECont protocol, rErEAD protocol, PT650D protocol, WI-125 protocol (large screen protocol), Modbus protocol (bus), Br-Send protocol and Br-Cmd protocol.

If the green indicator on the network port slot is steady on, the network cable is connected properly. If the orange indicator is blinking, the network adapter is receiving network data. If the indicator is set to network port in **SYS--t5.2** to **t5.4** system parameters. **NET/ COM**1 on the front panel of the instrument when **Modbus** network port communication is performed If the **COM2** indicator blinks, **Modbus/TCP** communication is normal. However, when **Modbus** communication is interrupted, the **NET/ COM1/COM2 indicator** is off.

See Chapter 11.11.2 Modbus Communication Address Table for **the address table.**

12.1 **tt** Protocol

Communication parameters Com - >N4 - > N4.1 Select the tt protocol, and the instrument will continuously send data in the Toledo protocol mode.

The format of Toledo's continuous sending method is as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
STX	**A**	**B**	**C**	**Display weight in 6 bytes**						**Loadcell voltage value is 6 bytes**						**CR**	**Checksum**

Among them:

STX - The starting character is the standard ASII starting character, **02H;**

Display value - Replace the leading 0 with a space, **20H**;

Loadcell voltage value - 6- byte**s** data without decimal points;

CR-**0DH;**

The status word A is defined as follows:

D0	**0**	**1**	**0**	**1**	**0**
D1	**1**	**1**	**0**	**0**	**1**
D2	**0**	**0**	**1**	**1**	**1**
Decimal point position	**x**	**.x**	**.xx**	**.xxx**	**.xxxx**

Among them: **D3, D4, D6 and D7 are 0(unchanged), and D5 is 1 (unchanged)**

The status word B is defined as follows:

D7	D6	D5	D4	D3	D2	D1	D0
0 fixed	Meter status	**1** fixed	Unit	Steady state	Overflow state	Symbols	Gross/net weight status
	0 fixed		**1:** kg **0:lb**	**1:**unstable **0:**stable	**1:** Overflow **0:** Normal	**1:** negative **0:** positive	0**:** gross weight 1**:** net weight

The status word C is defined as follows:

Unit	**bit2**	**bit1**	**bit0**
Selected by the status word B and bit 4	**0**	**0**	**0**
g	**0**	**0**	**1**
t	**0**	**1**	**0**

Bit 3~bit7 为 0.

12.2 Protocol Description

The data formats of other protocols are the same as those of serial communication. For specific details, please refer to the corresponding protocol formats of serial communication in Chapter 11. Including the GM-Cont protocol (i.e., the corresponding serial port protocol r-Cont protocol), r-SP1 protocol, Cb920 protocol, rECont protocol, rErEAD protocol, PT650D protocol, WI-125 protocol (large screen protocol), and Modbus protocol (bus) And Br-Send protocol, Br-Cmd protocol. When communicating through the network port, the communication parameters Com - >N4 - > N4.1 should be selected to correspond to the protocol.

Chapter 13 Bus Communication

13.1 PROFINET Communication

The GMT-H2 display has two **Profinet-IO** bus connection ports**, Port1** and **Port2,** which can be connected to the PROFINET bus from the station as a Profinet-IO**.**

The instrument **IP address** can be set and viewed in communication parameters **COM--N4--N4.5~N4.8; The MAC address can be viewed in system** parameter **SYS--t7.**

13.1.1 IO Status

GMT-H2 provides **14-byte Input**, **14-byte Output** in two modules, through which the master station can read and control the state of the weighing display.

13.1.1.1 Simple version Parameter address

PN Loop parameter list

Offset	Parameter name	Data type	Parameter description
Weight, Millivolts, and status parameters (Read only, I address)			
0	Current display weight	**DWord**	Weight currently displayed, data type displayed according to the data type selected by N4.10. Int: integer weight display; Float: floating weight display;
4	Weight status flag bit	**Word**	**D15:** Heartbeat packet display**,** switching between 0 and 1 at 1 Hz frequency
			D14: Write status, 0**:** no error, 1**:** write error
			D13: calibration status**, 0:** normal**, 1:** calibration failure
			D8-D12: Reserved
			D7: Error6 alarm status (current weight display is unstable when peeling),0 is invalid, 1 is valid
			D6: Error3 alarm state (when zeroing, the current weight is unstable),0 is invalid, 1

			is valid
			D5: Error2 alarm state (when zeroing, the current weight is out of the range of zeroing),0 is invalid**,** 1 is valid
			D4: Gross/Net weight status, 0:gross weight, 1:net weight
			D3: The sign of the value shown by the weighing display, 0:positive, 1 negative
			D2: zero state of weighing display, 0 non-zero, 1 zero
			D1: weighing monitor overflow state, 0 normal, 1 overflow
			D0: The weighing monitor is in stable state, 0 is stable, 1 is unstable
6	Millivolts of the loadcell	**Float**	**4** bytes loadcell millivolt data to read absolute millivolts
10	Read out value	**Dword**	The master station requests the data returned by the instrument, the value obtained according to the "request read address".
Function operation (write, Q address only)			
0	Function operation	**Byte1**	**D0-D7:** Reserved
		Byte0	**D5-D7:** Reserved
			D4: Calibrate zero
			D3: Gross/net weight switch
			D2: Clearing Tare
			D1: Tare
			D0: Zero
2	The request to write value of the modbus address	**DWord**	The Modbus write operation address. This parameter modification interface module supports the MODBUS register address range, which is limited to the PLC addresses in the readable and writable area (51 to 299). 0: Do not write data
6	Input value	**DWord**	Input value to the request to write value

			of the modbus address
10	The read request of the modbus address	**DWord**	Modbus reads the address of the operation register

PN acyclic parameter list

Parameter name	Parameter description
PWR-On Zero Range	Range setting for power-on zeroing **0**: Disable the power-on automatic zeroing function **1-100**: Power-on zero based on the 1-100% of capacity. **101:** Restore the last zero before shutdown
TrZero Range	Range: **0-99;** Initial value: **0**
Zero Range	Range: **0-99**; Initial value: **20**
STAB Range	Range: **0-99;** Initial value: **1**
Digital filter level	Range: **0-9**; Initial value: **4**
Steady-state filtering level	Range: **0-9**; Initial value: **0**
AD sampling rate	Range: **0-5**; Initial value: **4**
Tare record function switch	Range: **OFF, ON**; Initial value**: OFF**
Units	Range: **t, kg, g, lb**; Initial value: **kg**
Decimal point	Range: **0-4**; Initial value: **0**
Minimum Division	Range: **1, 2, 5, 10, 20, 50**; Initial value: **1**
Maximum Capacity	Range: **1**- min Division***999999**; Initial value: **10000**

13.1.2 Device Description file **GSD**

The device description file and connection method of GMT-H2 can be downloaded from the website of Shenzhen General Measure Technology Co., LTD**.** (www.gmweighing.com).

13.2 **EtherNet-IP Communication**

The IP address of the instrument can be set and viewed in the communication parameters **COM--N4--N4.5~N4.8**. The setting takes effect only after being powered on again. MAC address can be viewed in **SYS--t7** system parameter.

13.2.1 IO Status

GMT-H2 Lite provides a 7-byte INPUT, 7-byte OUTPUT from which

the master station can read and control the state of the weigh display.

13.2.1.1 Parameter address of the Compact version

EIP loop parameter list

Offset	Parameter name	Data type	Parameter description
0	Current display weight	**DWord**	Weight currently displayed, data type displayed according to the data type selected by N4.10. **Int:** integer weight display; **Float:** floating point weight display;
2	Weight Status flag bit (Read only)	**Word**	**D15:** Heartbeat packet display**,** switching between 0 and 1 at **1 Hz** frequency
			D14: Write status, 0**:** no error, 1**:** write error
			D13: calibration status**, 0:** normal**, 1:** calibration failure
			D8-D12: Reserved
			D7: Error6 alarm status (current weight display is unstable when taring),0 is invalid, 1 is valid
			D6: Error3 alarm state (when zeroing, the current weight display is unstable),0 is invalid, 1 is valid
			D5: Error2 alarm state (when zeroing, the current weight is out of the zero range),0 is invalid, 1 is valid
			D4: Gross weight/net weight status, **0:**gross weight, **1:**net weight
			D3: The sign of weight**,** 0:positive**,** **1:**negative
			D2: Zero state**, 0:**non-zero**, 1:**zero
			D1: Overflow state**, 0** normal**, 1** overflow
			D0: Stable state**, 0 is** stable**, 1** is

			unstable
3	Millivolts of the loadcell	**Float**	**4** bytes loadcell millivolt data to read absolute millivolt
5	Read out value	**Dword**	The master station requests the data returned by the instrument, the value obtained according to the "request read address".
Function operation (write, **Q** address only)			
0	Function operation	**Byte1**	**D0-D7:** Reserved
		Byte0	**D5-D7:** Reserved
			D4: Calibrate zero
			D3: Gross/net weight switch
			D2: Tare
			D1: Clear tare
			D0: Zero
1	The request to write value of the modbus address	**DWord**	Write value address. This parameter modify connect port module support MODBUS address range limit 51 to 300. 0:No write data.
3	Input value	**DWord**	Input value to the request to write value of the modbus address
5	The read request of the modbus address	**DWord**	Read address（Note: Can't read DWord address,when write an odd address） This parameter modify connect port module support

Note: The EIP acyclic parameter can refer to the acyclic parameter list of PN

13.2.2 EDS Device description file

The Equipment description document and connection methods for GMT-H2 can be downloaded from the website of Shenzhen General Measure Technology Co., LTD**.** (www.gmweighing.com).

13.3 EtherCAT Communication

The GMT-H2 display has two EtherCAT-IO bus connection ports, Port1 and Port2, which can be connected to the ETHERCAT bus as an EtherCAT-IO slave station.

The alias of the instrument station can be set and viewed in the menu communication parameters Com--N4--N4.11.

13.3.1 Simplified version parameter address

Offset	Data type	Parameter	Description
Weight, millivolts, and status parameters (read-only, I address)			
0	**REAL**	Current Weight	Weight currently displayed, single precision floating point type
4	**DINT**	Weight status marker bit	**D15：** communication heartbeat（the value of the PN's communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz）
			D14: The writing status is 0 with no error and 1 with a write error
			D13：Calibration status (0: Normal; 1: Calibration failed)
			D8~D12：Reserved
			D7：**ERROR6** alarm status (when taring, the current weight display is unstable) (0:invalid , 1: valid)
			D6：**ERROR3** alarm status (when clearing, the current weight is not stable) (0:invalid , 1: valid)
			D5：**ERROR2** alarm status (when clearing, the current weight is out of the clearing range) (0:invalid , 1: valid)
			D4：Gross/net weight (0 gross weight; 1 net weight)
			D3：The sign indicating the value on the weighing display, with 0 being a positive value and 1 a negative value
			D2：The zero point status of the weighing display, 0 non-zero, 1 zero point
			D1：The weighing display is in overflow status. 0 indicates normal operation and 1 indicates overflow.

			D0: The weighing display is in a stable state, with 0 unstable and 1 stable.
6	**REAL**	Millivolts of loadcell	4-byte loadcell millivolt data
10	**DINT**	Read out value	The master station requests the data returned by the meter, the value obtained according to the "request read address".
Function operation (write register, Q address)			
0	**Byte0**	Function Operation	**D5-D7**: Reserved
			D4: Calibration zero point
			D3: Gross/Net weight
			D2: Clear Tare
			D1: Tare
			D0: Zero
	Byte1		**D0-D7**: Reserved
2	**DWord**	The request to write value of the modbus address	Write value address. This parameter modification interface module supports the MODBUS register address range, which is limited to the addresses in the readable and writable areas (50 to 299).
6	**DWord**	Input value	Input value to the request to write value of the modbus address.
12	**DWord**	The read request of the modbus address	Read address

Non-circular parameter list

Refer to the section 13.1.1.1 PN non-cyclic parameters of Profinet Communication

13.3.2 Device Description file of **ESI**

The device description file of GMT-H2 and the specific steps for using PLC and Twincat can be downloaded from the website of Shenzhen General Measure Technology Co., LTD**.** (www.gmweighing.com).

13.4 **CCLINK IE Communication**

When CCLink IE Field Basic is selected for extended communication, it can communicate with the PLC. At this time, the IP of the instrument, PC and PLC need to be in the same local area network. The IP address of the instrument can be set and viewed in the communication parameters Com--N4--N4.5~N4.8. After setting, it will take effect only after re-powering on. The MAC address can be viewed in the system parameter SYS--t7.

13.4.1 Loop parameter address

Offsets	Parameter	Data type	Specification
Weight and state parameters（read register,I address）			
RWr0-RWr1	Display Current Weight	**DWord**	Currently displayed weight. The data type is displayed according to the data type selected in N4.10. Int: Integer weight display; Float: Floating-point number weight display
RWr2-RWr3	Weight state marker bit	**DWord**	D16-D31:reserved
			D15： communication heartbeat（the value of the PN's communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz）
			D14: The writing status is 0 with no error and 1 with a write error
			D13：Calibration status (0: Normal; 1: Calibration failed)
			D8~D12：Reserved
			D7：**ERROR6** alarm status (when taring, the current weight display is unstable) (0:invalid , 1: valid)
			D6：**ERROR3** alarm status (when clearing, the current weight is not stable) (0:invalid , 1: valid)
			D5：**ERROR2** alarm status (when clearing, the current weight is out of the clearing range) (0:invalid , 1: valid)
			D4：Gross/net weight (0 gross weight; 1 net weight)

			D3：The sign indicating the value on the weighing display, with 0 being a positive value and 1 a negative value
			D2：The zero point status of the weighing display, 0 non-zero, 1 zero point
			D1：The weighing display is in overflow status. 0 indicates normal operation and 1 indicates overflow.
			D0：The weighing display is in a stable state, with 0 unstable and 1 stable.
RWr4-RWr5	Loadcell voltage data	**DWord**	4-byte sensor millivolt data, read absolute millivolts
RWr6-RWr7	Read out value	**DWord**	The master station requests the data returned by the meter, the value obtained according to the "request read address".
Functional operation parameters (write register, Q address)			
RY5	Function operation	**DWord**	**D5~D31**：Reserved
RY4			**D4：**Cal zero
RY3			**D3**：Gross/Net weight
RY2			**D2**：Clear Tare
RY1			**D1**：Tare
RY0			**D0**：Zero
RWw0-RWw1	The request to write value of the modbus address	**DWord**	Write value address. This parameter modification interface module supports the MODBUS register address range, which is limited to the PLC addresses in the readable and writable area (50 to 299). 0: Do not write data
RWw2-RWw3	Input value	**DWord**	Input value to the request to write value of the modbus address（Note：only when value change will write in transmitter）
RWw4-RWw5	The read request of	**DWord**	Read address（The Modbus reads the operation address (note that when

	the modbus address		reading a two-word address, do not write an odd address). This parameter modification interface module supports the Modbus address range only for reading registers.

13.4.2 Non-cyclic parameter

Refer to the section 13.1.1.1 PN non-cyclic parameters of Profinet Communication.

13.4.3 Device Description file of CSP

The device description file and connection method of GMT-H2 can be downloaded from the website of Shenzhen General Measure Technology Co., LTD. (www.gmweighing.com).

Chapter 14 Error and Alarm Information

Error Data or Options or password Settings are incorrect, check the corresponding parameter input range.

Error1 Do not allow zeroing in net status.

Error2 When Zeroing, the current weight is out of the zero range.

Error3 When Zeroing, the current weight display (system) is unstable.

Error4 Input the wrong password **3** times.

Error5 Current weight overflow when taring.

Error6 When Taring ,The current weight display (system) is unstable.

Error7 Defines the calibration lock, wait for this signal to be valid.

Error8 When Taring , the weight is negative

Error9 Does not allow taring in net weight status .

OFL Weight positive overflow.

-OFL Weight negative overflow.

ADERR The AD is faulty.

UNDER Negative loadcell overflow.

OVER Positive loadcell overflow.

Chapter 15 Logo Name Custom Function

After the instrument is powered on, the instrument custom logo is displayed. By performing related operation on the instrument, you can customize the logo name displayed on the instrument. The steps are as follows:

1. After power on, press the key → MENU **8** times in the main display interface, the instrument will display **SYS**, press the key Wt/AO ENTER ↵, enter to **t1** parameter, combine the key → MENU and TARE OPTION ↑ enter the t8.1 display instrument logo, in the current interface, press the button → MENU for character selection, press the key TARE OPTION ↑ to adjust a character, press the key Wt/AO ENTER ↵ to save after the change, the instrument will display the changed name when startup; If no modification is made to the instrument model, the instrument will default to GMT-H2 **(Note: Instrument logo name will not be reset when resetting)**.

2. After entering the logo customization screen, you can customize the 6-bit main display characters. You can select a certain character by using **t**he MODE key. The OPTION key can be used to adjust the characters, the sequence of character change is **space, -, 0~9, A~Z** (according to the display character comparison sheet, as shown in the appendix) the **38** characters, press Enter key to save the current modified value.

Display the character comparison sheet**:**

a	b	c	d	e	f	g	h	i	j	k	l	m
												
n	o	p	q	r	s	t	u	v	w	x	y	z
												

Chapter 16 Product Dimension

Panel size

Desktop size