



GMT-H1

Operating instruction

杰·曼·科·技
VER01.00.02

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warning

The product adopts AC220V power supply.

Please keep the meter well grounded.

The product is an electrostatic sensitive device. Take esd preventive measures during use and maintenance

**Standards &
Certification**

Product standard: GB/T 7724-2008

Verification regulation: JJG 669-2016

CMC accuracy level 3;Guangdong 0000000048;

Safety certification: CE

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Chapter 1 Overview

1.1 Functions and features

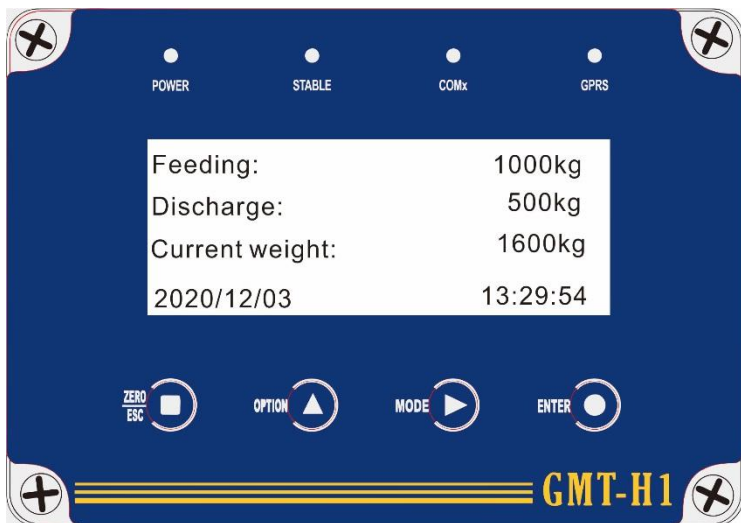
The shell type	Suspension, waterproof housing
Sensor interface	1 channel 6-wire analog sensor scale interface, connect up to 8 350 ω sensors
Display	LCD display screen
interface	1 channel 485 port (standard configuration); Supports ModbusRTU and continuous sending protocols.
	1 RJ45 port (standard); Supports Modbus/TCP and continuous transmission
	GPRS data transmission function
	Fixed I/O: 3 in and 3 out Variable IO: 3-way interface (can be customized for output/input function)
Weight calibration and calculation	Calculate the weight data by collecting the sensor, support the theoretical value calibration and weight calibration of two ways
Material level meter function	Input scan through IO port to obtain material level information

1.2 Technical Specifications

Power supply	V50hz AC90-260 (or 60 hz) plus or minus 2%
The shell size	175*150*75mm
The product weight	750g
Authentication Environment	- 10 ~ 40 °C;90% OF R.H is not dewy
operating environment	- 20 ~ 60 °C;90% OF R.H is not dewy

Storage environment	- 40 ~ 60 °C;90% OF R.H is not dewy
Power consumption	10 W
Excitation voltage of weighing platform	5V 200mA(MAX)
Weighing platform requirements	1 analog platform interface, connect up to 8 350 ω sensors, support 1mV/V, 2mV/V, 3mV/V sensitivity
Sensitivity/certified sensitivity	0.1 uV/uV/d d / 0.5
nonlinear	0.01 % F.S
A/D conversion speed	Default value: 100 times/second (optional)
Maximum display accuracy	1/100000
The keys	4 key audible mechanical keys
Decimal position	0, 0.0, 0.00, 0.000;Four kinds of optional

1.3 Panel Diagram



Status indicator:


POWER: indicates the **POWER** indicator.


STABLE: indicates the **stability indicator**. When the weighing platform or hopper material weight change in the stable range, the indicator light.


COMx: **communication indicator light;**


GPRS: **GPRS communication indicator light;**


Keyboard:

: Clear/Exit key to exit the current operation/return to the previous menu key. Long press to clear (meet the conditions for clearing)

: Parameter selection key. During data input, when the main display blinks, press this key to increase the blinking bit by 1. When the blinking position is 9, press this key to increase the blinking bit by 1.

: Parameter setting function selection key. During data input operation, the main blinking bit blinks. Press this key to move the blinking bit to the right.

: Confirm button, confirm to enter the current option during calibration or parameter setting; The data entry operation confirms the data and terminates the operation.

Main interface switch button: Power on The default display is the incoming and outgoing material content, press  It can switch to display the accumulative content of material in and out on the same day.

Chapter ii Installation and Wiring

2.1 Connecting Power cables to the controller

The packaging controller uses 220V, 50Hz AC power supply with protective ground. The connection is as shown below:



2.2 Sensor Connection

Gmt-h1 mold block shall be externally connected with resistance strain bridge sensor, and the sensor shall be connected to the module as shown below. When a four-wire sensor is selected, the SN+ and EX+ of the module must be short-circuited, and the SN- and EX- must be short-circuited. Each port of the sensor connection terminal is assigned to:

port	EX+	SN+	EX-	SN-	SIG+	SIG-	SHLD
6 wire	positive	Sensor positive	negative	sensor negative	signal positive	Signal negative	Shielding wire
	positive		negative		signal positive	Signal negative	Shielding wire

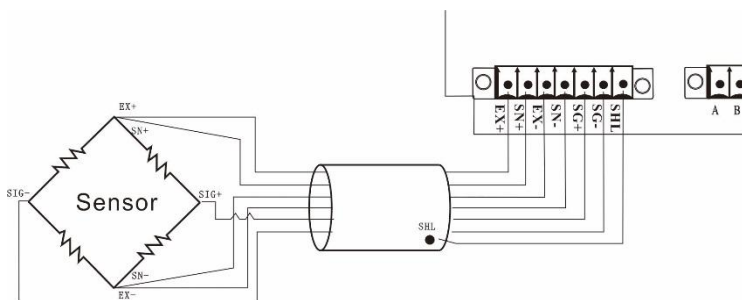
Matters needing attention:

1. Because the sensor output signal is more sensitive to electronic noise analog signal, so sensor wiring should be shielded cable, and laid separately with other cables, especially away from the AC power supply;

2. For the transmission distance is short and the temperature change is not large occasions or precision requirements are not high occasions can choose

the four-wire sensor; But for the application of long transmission distance or high precision requirements should choose the six-wire sensor;

3. When multiple sensors are connected in parallel, ensure that the sensitivity (mV/V) of each sensor is the same.



2.3 Connection of communication Ports

The product supports one channel 485 and one channel RJ45 network port communication, and supports Modbus-RTU/automatic reporting/Modbus-TCP/IP protocols. Communication parameters (see Section 8 for correspondence addresses)

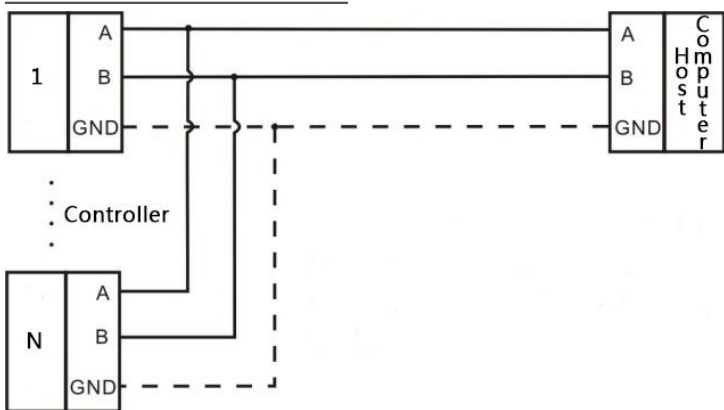
A serial port / 485	COM ID	Slave serial number used by serial port 1. Initial value: 1. Parameter range: 1 to 247. This only works if the communication protocol has a slave number.
	Baud rate	9600, 38400, 19200, 57600, and 115200 are optional. Initial value: 38400
	The data format	Parameter range: 8-E-1, 8-O-1, 8-N-1, 7-E-1, 7-O-1 (data bit, parity bit, stop bit). Initial value: 8-E-1. The Modbus RTU protocol can be 8-E-1, 8-O-1, or 8-N-1.
	Communication protocol	Modbus RTU, automatic reporting. Initial value: Modbus RTU

	Double word patterns	Parameter range: ab-cd, cd-ab.Initial value: AB - CD	
	Sending interval	Continuous sending interval, initial value 0.000, range 0.000-9.999s	
Modbus tcp	The IP address	Local IP/ Modbus TCP mode	Initial value: 192.168.101.246; Parameter range: 0.0.0.0 to 255.255.255.255
		Destination IP address/Automatic report mode	
	The port number	Local port/Modbus TCP mode	Initial value: 502;The value ranges from 0 to 65535
		Target port/Automatic report mode	
	mask	Initial value: 255.255.255.000	
	The gateway	Initial value: 192.168.000.001	
	Communication protocol	Modbus TCP, automatic reporting. Initial value: Modbus TCP	
	Double word patterns	Parameter range: ab-cd, cd-ab.Initial value: AB - CD	
	Sending interval	Continuous sending interval, initial value 0.000, range 0.000-9.999s	
GP RS	Destination IP address	The IP address of the server for communication;Initial value: 192.168.101.246	
	Destination port number	The IP port number of the server for communication;Initial value: 502	
	Heart rate	The heartbeat packet frequency connected to the server during communication;Initial value: 30s.Scope: 0-3600 - s	
	GPRS communication switch	Whether to enable GPRS communication.Initial value: off;	
	IMEI IMSI queries	The IMEI and IMSI information of the GPRS chip cannot be modified	
	GPRS current status	View the current GPRS status	

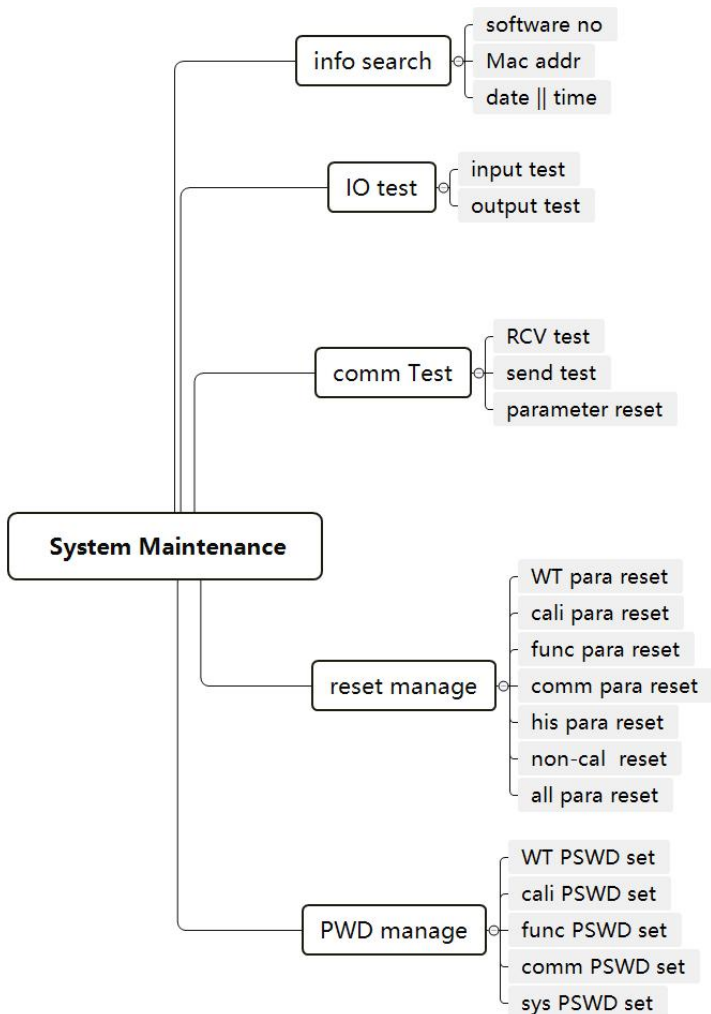
Serial port terminal connection



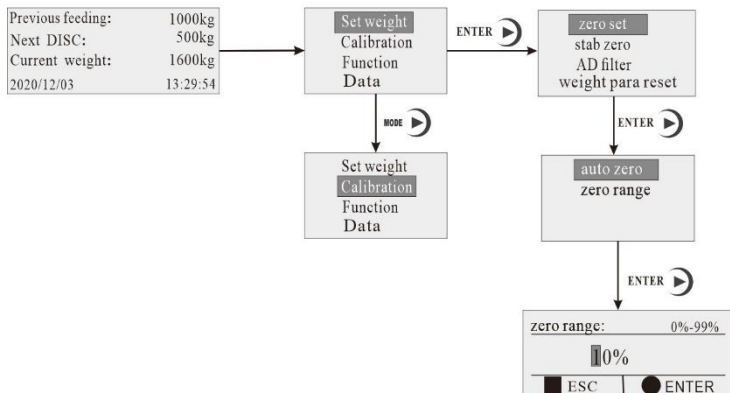
A B GND



Chapter three menu overview



3.1 Parameter Selection and Setting



- 1) On the main screen, press **MODE** (right arrow) The parameter setting page is displayed
- 2) **OPTION** (up arrow), **MODE** (right arrow) Toggle options.
- 3) According to the **ENTER** (right arrow) The parameter Settings are displayed.
- 4) According to the **ZERO ESC** (square button) To exit.

Parameter Settings:



1),   Switch parameter value.

Chapter 4 Setting parameters of weighing

parameter		Functional description
Reset Settings	Automatic zero clearing after power-on	Set the reset range during power-on. If the value is 0, the reset range will not be reset during power-on. Initial value: 0;Parameter Range: 0 to 99%
	Reset the scope	Sets the range within which zeroing is allowed. Initial value: 20%;Parameter Range: 0 to 99%
STAB&TrZero	STAB Timer	In this time, the weight variation range is not greater than the range of stability, considered stable. Initial value: 1.000s;Parameter Range: 0.100 to 9.999 seconds
	STAB Range	During the stabilization time, the weight variation range is not greater than this set range, and it is considered stable. Initial value: 1D;The value ranges from 0 to 99D
	TrZero Time	In the set time, the weight change range is less than the zero range, automatic tracking zero. Initial value: 1.000s;Parameter Range: 0.100 to 9.999 seconds
	TrZero Range	When the weight change range is less than this set range during the zero catching time, zero will be automatically tracked. Initial value: 0d;The value ranges from 0 to 99D
Sampling and filtering	Digital filtering	Digital filter, the higher the level, the stronger the filtering, but the longer the response time. Initial value: 4;Parameter Range: 0 to 9

	Adv. Filter	Steady-state filter, which is enabled when the weight is in a steady state. The higher the level, the stronger the filtering, but the longer the response time. Initial value: 0;Parameter Range: 0 to 9
	Sampling frequency	Sampling frequency, initial value: 100 times/SEC. Scope: optional, 60, 100, 120, 200, 240, 400, 480 50 times/SEC
Weighing parameter reset		Press ENTER (OK) to restore the factory Settings of weighing parameters.

Chapter 5 Calibration parameters

parameter		Functional description
The weight of the format	unit	A unit used for indicating weight. Initial value: kg, Parameters: 0:kg/1: G /2: T /3:lb
	The decimal point	The number of decimal places used for weight indication. Initial values: 0 Parameter range: 0/0.0/0.00/0.000
	Dividing the value	The smallest unit of change in weight. Initial value: 1. Parameters: 1/2/5/10/20/50/100/200/500 (d)
	range	Maximum weight that can be displayed. Initial value: 10000 Parameter range: 1~(100000* degree value)
The weight of the calibration	Autozero calibration	The actual millivolt of the current sensor is displayed
	Input zero calibration	Input the zero millivolt value manually for zero calibration without weight.
	Weight calibration	Perform weight calibration parameters
Theoretical calibration	Sensor sensitivity	Average value of the true sensitivity of the connected sensor, initial value: 2.0000. Scope: 0.0001-5.0000 mV/V
	Total sensor range	The sum of the real range of the sensor; Initial value: 10000 Scope: 0-999999
	Enabled	Choose to enable the theoretical value to

	theoretical calibration	calibrate and calculate the weight; Initial value: Off. Range: on/off
Weight correction factor		Used to correct the weight value, showing the weight = correction factor X weight calculated by the calibration parameter (theoretical value parameter); Initial value: 1.0000. Range: 0.00001-9.99999
Calibration reset		Press ENTER (ENTER) and input the calibration password to restore the factory Settings of the calibration parameters.

5.1 Zero point Calibration

Zero calibration function can be completed by interface operation and communication interface operation.

Interface operation: Weighing interface -- > [Calibration menu] -- > [Weight calibration]

Automatic zero calibration


auto zero cali stable


2.760mV

 ESC
 |
 ENTER

Stable/unstable: the sensor is in a stable state

2.760mV: is the millivolt of the current sensor (value should be the actual value on site)

■ Key Cancel: Press  Key to exit the automatic zero calibration interface.

● Key confirmation: Press  Key to complete zero calibration (zero calibration operation can be completed only in a stable state. Otherwise, an alarm interface will pop up.

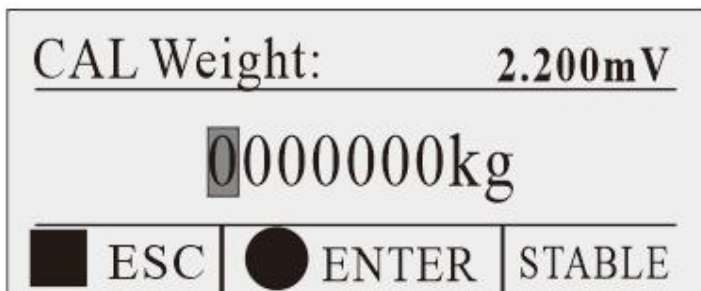
Note: 1) Automatic zero calibration defines the current state as zero. The platform should be emptied before execution.

2) Record "current sensor millivolt value", so as to carry out "input zero calibration" when it is inconvenient to empty the platform.

[Input zero calibration]

Manually input millivolt value for weightless calibration.

5.2 Weight calibration of weights



Calibration steps:

- 1) Enter the weight calibration interface
- 2) Add weights to the weighing table
- 3) Valid until stable output
- 4) Enter the weight corresponding to the weight value

-
- 5) According to the  Key to complete weight calibration.

5.3 Theoretical value calibration

The theoretical value calibration refers to the weight calibration operation through the input connection of sensor sensitivity and sensor range value.

Theoretical value calibration requires three steps:

- 1) Set sensor sensitivity (for example, connect multiple sensors and enter the average value of sensitivity)
- 2) Set the total sensor range (such as connecting multiple sensors, input the total sensor range and)
- 3) Turn on the "theoretical value effective" switch

Chapter 6 Application Settings

6.1 Application Setting Parameter table

parameter		Functional description
Incoming and outgoing material management	Minimum incoming weight	When the positive weight change is greater than this value, the instrument considers that feeding operation has occurred. If 0, no judgment feeding operation is performed Initial value: 1;Scope: 0-999999
	Minimum outgoing weight	When the negative weight change is greater than this value, the instrument considers that discharging operation occurs;If 0, no judgment operation will be performed Initial value: 1;Scope: 0-999999
	Feed in and out delay	In the set period of time, the weight does not change, it is considered that the material in and out of the end. Initial value: 1.000s;Scope: 0.100 to 99.999
Automatic reporting switch	After this function is enabled, the incoming and outgoing material frames in GPRS communication will be automatically reported. Initial value: off;Range: on/off.	
Application parameter reset	Press ENTER (ENTER) and input the calibration password to restore the factory Settings of the calibration parameters.	

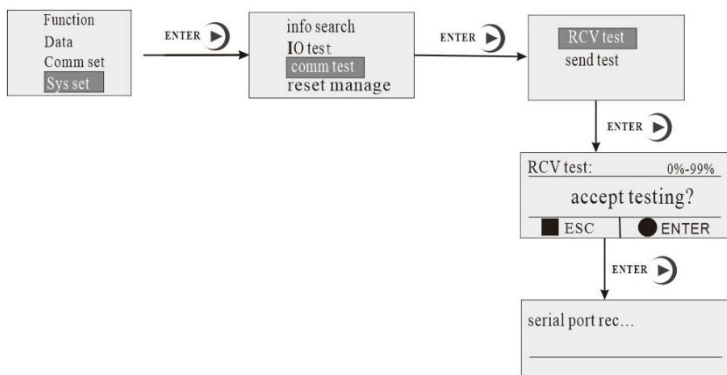
Chapter 7 System Maintenance

7.1 Communication Test

The serial port test function sends and receives data in a fixed baud rate (9600) and data format (8-N-1) to test the serial port connection status.

1) **Send TEST: send data "test-nnn".**

2) **Receiving test: externally send test data (only ASCII code) to the instrument, and display the data on the display, the length of each frame of data should not exceed 10 bytes.**



Chapter 8 MODBUS communication

8.1 the Modbus protocol

Gmt-h1 Supports one RS485 serial port and one network port. Supports modbus-RTU (serial port), Modbus-TCP/IP(network port) communication mode and automatic reporting mode.

8.2 MODBUS Function Code and Exception Code

◆ Function codes supported by the instrument:

Function code	The name of the	instructions
03	Read the register	A maximum of 125 registers are read at a time
06	Write a single register	
16	Write multiple registers	This command only supports writing dual registers, and the address must be aligned when writing. It is not allowed to write only part of the dual registers, and it is allowed to read only part of the dual registers.
01	Read the coil	Note that this length is in bits
05	Write the coil	

Note: this meter only supports the above MODBUS function codes, the meter will not respond to other function codes.

◆ MODBUS exception code response

code	The name of the	meaning
02	Invalid data	For this meter, the error code indicates

	address	that the received data address is an invalid address.
03	Invalid data value	The part of data written and the range allowed.
04	From the machine fault	An unrecoverable error occurred while the meter was attempting to perform the requested operation.
07	An unsuccessful programming request	For the meter, the command received cannot be executed in the current condition.

5.3 MODBUS Communication Address

Function address	The PLC address	meaning	instructions
The following is readable (read function code 0x03)			
0000-0001.	40001-40002.	Weight status	There are signs, integers
0002	40003	Weight status flag bit	D12-15 Retention. Return 0
			D11 Use theoretical weights
			D10 Retention. Return 0
			D9 Retention. Return 0
			D8 Millivolt number is stable, (the indicator of millivolt number to judge stability during calibration)
			D7 Negative sensor overflow, lower than the allowable sensor voltage range
			D6 The sensor is overflowing, exceeding the allowable sensor voltage range
			D5 Weight negative overflow, weight less

				than “-(maximum range + 9D)”
			D4	Weight overflow, weight greater than “maximum range + 9D”)
			D3	Overflow status, (abnormal weight or sensor
			D2	Display weight negative sign, (display weight negative
			D1	Zero point (weight within 0+/- 1/4 D range)
			D0	Stability (stability indicator of weight determination)
0003	40004	Process status flag bit	D15	In the feed
			D14	In the discharge
			D0-13	keep
0004-0013.	40005-40014.	The reserved		
0014-0015.	40015-40016.	Weight status	Display values, symbols, floating - point type	
0016-0023.	40017-40024.	The reserved		
0024-0025.	40025-40026.	AD internal code after filtering	After filtering AD source code	
0026-0027.	40027-40028.	Sensor voltage	Voltage input to sensor, 4 decimal points	
0028-0029.	40028-40030.	Relative zero voltage	Voltage relative to zero, 4 decimal places	
0030-0039.	40031-40040.	The reserved		
0040	40041	Calibration error code	bit12-bit 15	Read-only, returns 0
			bit11	The maximum range is too large
			bit10	The maximum range is too small
			bit9	Beyond minimum resolution

			bit8	Weight input exceeds maximum range
			bit7	Weight input cannot be zero
			bit6	The relative zero voltage is negative
			bit5	Sensor overflow during weight calibration
			bit4	Negative sensor overflow during weight calibration
			bit3	Weight calibration is unstable
			bit2	Sensor overflow during zero calibration
			bit1	Negative sensor overflow during zero calibration
			bit0	Zero point calibration is unstable
0041	40042	Reset error code	bit6-bit15	Read-only, returns 0
			bit5	The sensor overflowed during zero clearing
			bit4	Negative sensor overflow during zero clearing
			bit3	Unstable at zero clearing
			bit2	Clear zero out of range
			bit1	It is unstable during power-on and zero clearing
			bit0	Power-on clearing exceeds the threshold
0042-0046.	40043-40047.	keep		
0047	40048	Input status area (IN1-IN)	Bit3-bit15	Read-only, returns 0
			bit2	Input 3 status
			bit1	Input 2 status

		3)	bit0	Input 1 state
0048	40049	Output status area (OUT1-output3)	Bit3-bit15	Read-only, returns 0
			bit2	Output 3 state
			bit1	Output 2 state
			bit0	Output 1 state
0049	40050	Customizing THE I/O status area (I01-I03)	Bit3-bit15	Read-only, returns 0
			bit2	Custom I03 status; 1: valid (input mode: valid, output mode: valid)
			bit1	Custom I02 status; 1: valid (input mode: valid, output mode: valid)
			bit0	Custom I01 status; 1: valid (input mode: valid, output mode: valid)
0050-0099.	40051-40100.	The reserved		
0100-0101.	40101-40102.	Power-on clearance range	Initial value: 0 (The power-on and reset function is disabled) Range: 0~99% (full scale percentage)	
0102-0103.	40103-40104.	The reserved		
0104-0105.	40105-40106.	Reset the scope	Initial value: 20; Range: 0~99% (full scale percentage)	
0106-0113.	40107-40114.	The reserved		
0114-0115.	40115-40116.	stabilizing range	Initial value: 1; Scope: 0 ~ 99 d	
0116-0117.	40117-40118.	stabilizing time	Initial value: 1.000; Range of 0.100 ~ 9.999 s	
0118-0119.	40119-40120.	Back to zero range	Initial value: 0; Scope: 0 ~ 99 d	
0120-0121.	40121-40122.	After the zero time	Initial value: 1.000; Range of 0.100 ~ 9.999 s	
0122-0123.	40123-40124.	Digital	Initial value: 4; Scope: 0 ~ 9	

		filtering	
0124-0125.	40125-40126.	The steady state filtering	Initial value: 0;Scope: 0 ~ 99 d
0126-0127.	40127-40128.	AD sampling speed	Initial value: 2;Range: 0~7;They correspond to 50-480 times/SEC
0128-0199.	40129-40200.	The reserved	
Calibration parameter area, the following content is readable and writable (read function code is 0x03, write function code is 0x16)			
0200-0201.	40201-40202.	unit	Initial value: 0; Range: 0: kg, 1: g, 2: T, 3: lb
0202-0203.	40203-40204.	The decimal point	Initial value: 0 (0); Range: 0:0;A 1-0. 0;The 2-0. 00;000 3-0.
0204-0205.	40205-40206.	Dividing the value	Initial value: 1; Scope: 1/2/5/10/20/50/100/200/500 d
0206-0207.	40207-40208.	range	Initial value: 10000; Range: 1~(100000* degree value)
0208-0209.	40209-40210.	The reserved	
0210-0211.	40211-40212.	Automatic zero calibration	Write: 1 for zero calibration Read: indicates the millivolts of the current sensor
0212-0213.	40213-40214.	Manual zero calibration	Write: numerical calibration zero (fixed 4 decimal points)
0214-0215.	40215-40216.	Weight calibration with weights	Write: weight weight value standard gain. Read: gain millivolt value.
0216-0223.	40217-40224.	The reserved	
0224-0225.	40225-40226.	Sensor sensitivity	Write: sensitivity value Read: Sensitivity value set last time
0226-0227.	40227-40228.	Total sensor range	Enter the sum of all sensor ranges

0228-0229.	40229-40230.	Theoretical value effective switch	0: disables the function of calculating the theoretical weight 1: Turn on the theoretical value to calculate the weight
0230-0231.	40231-40232.	Calibration correction factor	Fixed 5 decimal places
0232-0299.	40233-40300.	The reserved	
Process parameter area, the following contents are readable (read function code is 0x03)			
0300-0301.	40301-40302.	The reserved	
0302-0303.	40303-40304.	Minimum feed weight	
0304-0305.	40305-40306.	Minimum discharge weight	
0306-0307.	40307-40308.	Feed in and out delay	
0308-0349.	40309-40350.	The reserved	
0350-0351.	40351-40352.	Start time of feeding (month/year/day) The first and second bytes are years, the third byte is months, and the fourth byte is days	
0352-0353.	40353-40354.	Start time of feeding (hour minute second) The first byte is 0, the second byte is hour, the third byte is minute, and the fourth byte is second	
0354-0355.	40355-40356.	Historical weight of incoming and outgoing materials 1. Negative number means discharge, positive number means incoming material	
0356-0949.	40357-40950.	Read out 99 groups of material start time and material weight information sequentially	
0950-0951.	40951-40952.	Date accumulated in a single day (oldest data)	
0952-0953.	40953-40954.	Cumulative incoming data in one day	
0954-0955.	40955-40956.	Accumulated discharging data in a single day	
0956-1309.	40957-41310.	Read the cumulative date, input and output data for the next 59	
<p>1. 4X00951-4X00956 of PLC address is the oldest data accumulated in a single day</p> <p>2. If 60 pieces of data are stored, 4x01305-4x01310 of PLC address is the latest data accumulated in a single day</p> <p>3. If 60 records are added, the old records will be deleted and new records will be added.The second-to-last will be offset to the oldest data, which still satisfies 1, 2 above</p>			

In the serial port parameter area, the following contents are read/write bit status (read function code is 0x03, write function code is 0x06)			
8000	48001	RS485 from immediately	Initial value: 1. Parameter range: 1 to 254
8001	48002	RS485 baud rate	Initial value 0:38 400 0:38 400/1:48 00/2:9 when good, 5200, 600/600/200/4:57 and optional
8002	48003	RS485 protocol	Initial value: 0:modbus RTU Zero: the modbus RTU; 1: Automatic reporting
8003	48004	RS485 data format	Initial value: 0:8-E-1. Parameter range: 0:8-E-1; 8 - O - 1; "- N - 1; Then - E - 1; 4:7-O-1 (meaning: data bit - parity - stop bit)
8004	48005	RS485 duplex mode	Initial value: H-L. Zero: H - L; 1:L-H
8005	48006	RS485 continuous transmission interval	Scope: 0 ~ 9999
8006-8099.	48007-48100.	The reserved	
In the network port parameter area, the following contents are read/write bit status (read function code is 0x03, write function code is 0x06)			
8100	48101	Network port communication mode	Zero: the modbus TCP/IP; 1: Automatic reporting
8101	48102	Network port high and low bytes	0: h-L 1: L-h, initial value: 0
8102	48103	Network port Sending interval	Scope: 0 ~ 9999
8103	48104	IP address segment 1 of the network port	IP address. Initial value: 192.168.101.246 This parameter ranges from 0.0.0.0 to 255.255.255.255
8104	48105	IP address segment 2 of the network port	
8105	48106	IP address	

		segment 3 of the network port	
8106	48107	IP address segment 4 of the network port	
8107	48108	Destination IP address segment 1 of the network port	
8108	48109	Destination IP address segment 2 of the network port	
8109	48110	Destination IP address segment 3 of the network port	
8110	48111	Destination IP address segment 4 of the network port	
8111	48112	Network port	Indicates the local port number
8112	48113	Network port	Target port number
8113	48114	Network port	subnet mask 1
8114	48115	Network port	subnet mask 2
8115	48116	Network port	subnet mask 3
8116	48117	Network port	subnet mask 4
8117	48118	Network Port	Gateway 1
8118	48119	Network Port	Gateway 2
8119	48120	Network Port	Gateway 3
8120	48121	Network Port	Gateway 4
8121-8249.	48122-48250.	The reserved	
8250	48251	GPRS target IP segment 1	
8251	48252	GPRS target IP segment 2	
8252	48253	GPRS target IP segment 3	
8253	48254	GPRS target IP segment 4	
8254	48255	GPRS target port number	
8255	48256	GPRS heartbeat packet frequency	

8256	48257	GPRS enabled	0: GPRS is disabled. 1: GPRS is enabled
8257	48258	GPRS is activated again	Write only 1: active
8258	48259	The GPRS IMEI1	read-only
8259	48260	The GPRS IMEI2	
8260	48261	The GPRS IMEI3	
8261	48262	The GPRS IMEI4	
8262	48263	The GPRS IMEI5	
8263	48264	The GPRS IMEI6	
8264	48265	The GPRS IMEI7	
8265	48266	The GPRS IMEI8	
8266	48267	The GPRS IMSI1	
8267	48268	The GPRS IMSI2	
8268	48269	The GPRS IMSI3	
8269	48270	The GPRS IMSI4	
8270	48271	The GPRS IMSI5	
8271	48272	The GPRS IMSI6	
8272	48273	The GPRS IMSI7	
8273	48274	The GPRS IMSI8	
8274-8799.	48275-48900.	The reserved	
Reset parameter area, the following contents are read/write bit state (read function code is 0x03, write function code is 0x06)			
8900	48901	Reset of all parameters	Reset parameter address area: Write 1 in the corresponding address to reset the parameter. For example, write 1 to address 8900 to complete the reset of all
8901	48902	In addition to calibration parameters reset	
8902	48903	Calibration parameter reset	
8903	48904	Reset of weighing parameters (basic parameters of transmitter)	
8904	48905	keep	
8905	48906	Application parameter reset	
8906	48907	Clearing Historical Data	
8907	48908	Serial port Parameter Reset	
8908	48909	Reset network port Parameters	
8909	48910	GPRS parameters reset	
8910	48911	Reset all communication parameters	

			parameters.
8911-9999.	48912-41000 0.	The reserved	
The following is a read-only area (read function code 0x03)			
10000	410001	Background Software Version (high word)	View the product software version and compilation date address area
10001	410002	Background Software Version (low type)	
10002	410003	Background compilation date (high type)	
10003	410004	Background compilation date (low type)	
10004	410005	Meter serial number first character	
10005	410006	Meter serial number second character	
10006	410007	Meter serial number 3 character	
10007	410008	The fourth character of the meter serial number	
10008	410009	The fifth character of the meter serial number	
10009	410010	Meter serial number 6 character	
10010	410011	Meter serial number 7 character	
10011	410012	Meter serial number 8 character	
10012	410013	Meter serial number ninth character	
10013	410014	The 10th character of the meter serial number	
10014	410015	The 11th character of the meter serial number	
10015	410016	Meter serial number 12th character	
10016	410017	Meter serial number 13 character	
10017	410018	Meter code character 01	
10018	410019	Meter code 02 character	
10019	410018	Meter code 03 character	
10020	410021	Meter code 4th character	

10021	410022	The 5th character of the meter code
10022	410023	Meter code character 06
10023	410024	Meter code character 07
10024	410025	Meter code character 08
10025	410026	Meter code character 09
10026	410027	The meter codes the 10th character
10027	410028	The meter codes the 11th character
10028	410029	Meter code 12th character
10029	410030	keep
10030	410031	Meter model character 1
10031	410032	Meter model character 2
10032	410033	Meter model character 3
10033	410034	Meter model character 4
10034	410035	Meter model character 5
10035	410036	Meter model character 6
10036	410037	Meter model character 7
10037	410038	Meter model character 8
10038	410039	Meter model character 9
10039	410040	Meter model character 10
10040-10099.	410041-410100.	keep
10100	410101	Network port 0 Meter Mac address segment 1, 0-255
10101	410102	Network port 0 Meter Mac address segment 2, 0-255
10102	410103	Network port 0 Meter Mac address segment 3, 0-255
10103	410104	Network port 0 Meter Mac address segment 4, 0-255
10104	410105	Network port 0 Meter Mac address segment 5, 0-255
10105	410106	Network port 0 Meter Mac address segment 6, 0-255
10106-10299.	410107-410300.	The reserved

Function coil address, readable and writable (read function code is 0x01, write function code is 0x05)			
300	00301	Reset of all parameters	Write: FF00H = valid (only write FF00H); Read: 0001H = open 0000 h = closed
301	00302	Partial parameter reset (all but not calibration)	
302	00303	Calibration parameter reset	
303	00304	Reset of weighing parameters (basic parameters of transmitter)	
304	00305	The reserved	
305	00306	Application parameter reset	
306	00307	Clearing Historical Data	
307	00308	Serial port Parameter Reset	
308	00309	Reset network port Parameters	
309	00310	GPRS parameters reset	
310	00311	Reset all communication parameters	
311-399.	00312-00400.	The reserved	
Coil address, readable and writable (read function code 0x01, write function code 0x05)			
400	00401	Input IN1	Bit read-only area, read bit each input, output port status, valid 1, invalid 0
401	00402	Input IN2	
402	00403	Input IN3	
403	00404	Output the OUT1	
404	00405	Output OUT2	
405	00406	Output OUT3	
406	00407	Custom IO1	
407	00408	Custom IO2	

408	00409	Custom I03	
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Gmt-h1 Supports one RS485 serial port and one network port. Supports modbus-RTU (serial port), Modbus-TCP/IP(network port) communication mode and automatic reporting mode.

Chapter 9 Automatic Reporting Protocol

Gmt-h1 Serial port and network port communication can be reported continuously.It can automatically upload instrument status, weight information and material information according to the set time interval.

Format of automatically reporting data when there is no incoming or outgoing status

STX	From the number	state	Symbol + / -	The weight of the	The checksum	0D	0A
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Among them:

STX -- 1 bit, start character, 02H

Slave machine number: 3 digits, ranging from 001 to 254

+/- -- 1 bit, + : 2BH;- : 2 dh

Weight - 7 digits, including decimal point, high to 0 without decimal point

Checksum -- 2 bits, checksum.Calculation: add all the preceding values and convert them to decimal, then take the last two digits and convert them to ASCII.For example, if the sum of 02 30 30 31 41 2B 20 30 30 30 30 39 35 32 39 31 0D 0A is 24F, the value is 591 in decimal notation. If the last two digits are 9 and 1 are ASCII, the value is 39 31

Status:

Status bit description								
A sequence	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
define	keep	keep	keep	keep	keep	1 - zero	1 - overflow	1 - stable
describe	Fixed 0	Fixed 1	Fixed 0	Fixed 0	Fixed 0	0 - other than zero	0 - normal	0 and instability

Format of automatically reporting data in and out state

STX	From the number	In and out of the material	The start time	The end of time	The weight of the	The checksum	0D	0A
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Input and output -- 1 bit, I(feed) : 49H;O(discharge) : 4FH

Start/end time -- 12 bits, corresponding to year, month, day, hour, minute, second.

For example, the following data is reported:

02 30 30 31 4F 32 30 31 31 32 30 31 39 35 31 33 35 32 30 31 31 32 30 31 39 35 31 35 38 20 30 30 30 37 36 37 38 33 0D 0A

The reported information is:

Slave machine number: 01

State: discharge

Start time: 19:51:35, 20th Of November, 20, 2000

End time: 19:51:58, November 20, 2010

Weight data: 767

The reported data are:

02 30 30 31 40 2B 20 30 30 33 37 35 35 39 34 0D 0A

The reported information is:

Slave machine number: 01

State: current weight is positive (not in and out state)

Weight data: 3755

Chapter 10 GPRS communication

8.1 GPRS Communication Parameters

Destination IP address	The IP address of the server for communication;Initial value: 192.168.101.246
Destination port number	The IP port number of the server for communication;Initial value: 502
Heart rate	The heartbeat packet frequency connected to the server during communication;Initial value: 30s.Scope: 0-3600 - s
GPRS communication switch	Whether to enable GPRS communication or reactivate it;Initial value: off;
IMEI query	The IMEI and IMSI information of the GPRS chip cannot be modified
GPRS current status	View the current GPRS status

8.2 GPRS data frame structure description

The data format	Data frame header 1	Data frame header 2	Data frame length 1	Data frame length 2	The command code	The data content	terminator
The sender	0xFE	0xFE	2 bytes, 6+ number of bytes of data content		0x01-0x7F	See specific agreement	0xED
The response end	0xFE	0xFE	2 bytes, 6+ number of bytes of data content		0 x80 command code	See specific agreement	0xED

8.3 GPRS protocol

The heartbeat packets	Byte sequence number	Appearance -> PC	Content description	PC -> Meter	The reply content
One way (no reply)	1	0xFE	The fixed frame head	The PC does not answer the call	The PC does not answer the call
	2	0xFE			
	3	0x00	Data frame length		
	4	0x11			
	5	0x01	The command code		
	6	Instrument MAC1	Meter MAC address segment		
	7	Instrument MAC2			
	8	Instrument MAC3			
	9	Instrument MAC4			
	10	Instrument MAC5			
	11	Instrument MAC6			
	12	Weight data 1	Current weight, floating point, signed data		
	13	Weight data 2			
	14	Weight data 3			
	15	Weight data 4			
	16	Material level data	The lower six bytes		

			correspond to input 1-6	
	17	0XED	terminator	

8.3.2 Incoming and outgoing materials report frames

Incoming and outgoing materials report frames	Byte sequence number	Appearance -> PC	Report Content description	PC -> Meter	Description of Reply content
Two-way (with reply)	1	0xFE	The fixed frame head	0xFE	The fixed frame head
	2	0xFE		0xFE	
	3	0x00	Data frame length	0x00	Data frame length
	4	0x1F		0x09	
	5	0x02	The command code	0x82	Return command code
	6	Report Serial Number (high 8 digits)	Report the message serial number	Report Serial Number (high 8 digits)	Serial number of the frame to be reported
	7	Report Serial Number (lower 8 digits)		Report Serial Number (lower 8 digits)	
	8	Instrument MAC1	Meter MAC address segment	Receiving state	0x01 succeeded, 0x00 failed
	9	Instrument MAC2		0XED	terminator

10	Instrument MAC3		<p>Note That the data fails to be reported. You need to save the data on the instrument side and report it again until it succeeds. Front-rear events of front-rear data stored in a queue, adopt the way of first in first out, one by one to send to the server, and did not send the backup data in power lost memory, to prevent data loss when the power is cut off, instrument normal boot after will check out whether electricity storage have been sent the historical data, if you have read to send queue to send them one by one, if not then continue to wait for front-rear event occurs</p>
11	Instrument MAC4		
12	Instrument MAC5		
13	Instrument MAC6		
14	years	Start time of feeding and discharging	
15	month		
16	day		
17	hours		
18	minutes		
19	seconds		
20	years	End time of incoming and outgoing materials	
21	month		
22	day		
23	hours		
24	minutes		
25	seconds		
26	Entry and exit mark	0x00 feed,0x01 discharge	
27	Weight data 1	Current weight, floating point, signed data	
28	Weight data 2		
29	Weight data 3		
30	Weight data		

		4	
	31	0XED	terminator

8.3.3 Setting GPRS Communication Parameters

Set GPRS parameters	Byte sequence number	PC -> Meter	Report Content description	Appearance -> PC	Description of Reply content
Two-way (with reply)	1	0xFE	The fixed frame head	0xFE	The fixed frame head
	2	0xFE		0xFE	
	3	0x00	Data frame length	0x00	Data frame length
	4	0x0E		0x09	
	5	0x03	The command code	0x83	Return command code
	6	Download serial Number (high 8 digits)	Download parameter serial number	Download serial Number (high 8 digits)	Corresponding download parameter serial number
	7	Download serial number (lower 8 bits)		Download serial number (lower 8 bits)	
	8	Destination IP address segment 1	New destination IP address	Receiving state	0x01 succeeded, 0x00 failed
	9	Destination IP address segment 2		0XED	terminator
	10	Destination IP address segment 3			

	11	Destination IP address segment 4		
	12	Destination port number 1	New destination port number	
	13	Destination port number 2		
	14	0XED	terminator	

Chapter 11 Product size

