



杰 · 曼 · 科 · 技

GMT-X4

User's Manual

110611040002

V01.00.08

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Warning

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

Please keep the transmitter well grounded.

The transmitter is electrostatic sensitive equipment, please pay attention to take anti-static measures in the use and maintenance

Standard &
Certification

Product Standard: GB/T 7724—2008

Verification Regulation: JJG 649-2016

CMC Accuracy Class 3 (6000e);

Guangdong system 0000000048;

Safety Certificate: CE

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1. General Description

1.1 Functions and Characteristics

Shell type	DIN Rail mounted(National standard 35mm card rail), stainless steel housing		
Display	160*128 1.96" white light OLED		
Language	Support Chinese, English		
Preset point function	8 - way comparator 5 comparison methods are optional		
Mode change function	Support combination mode and independent mode. When in independent mode, each channel works independently and the corresponding parameters can be set separately; When in combination mode, two or more channels can be selected for combination, and the combined parameters can be set.		
Channel selection function	Support the selection of two channel, three channel, and four channel functions (optional fuction,make statement when order).Display the number of channels selected, and display the corresponding channel parameters. When selecting a two channel instrument, channels 1 and 2 are effective, while when selecting a three channel instrument, channels 1 to 3 are effective.		
Interface	Load cell interface	4 way 6 line analog load cell scale interface, 40*350Ω load cell maximum connect	
	1 way RS485 interface	Support modbus RTU and Continuous mode	
	1 way RS232 interface		
	IO interface	4 in 8 out transistor input output interface, each channel 1 in 2 out, low level valid	
	Option 1	1 way CAN OPEN Bus interface,support CAN communication	
	Option 2	4 way analog input output interface(Current/voltage)	
	Option 3	Signal network port, support TCP/IP	
		Profinet Bus interface	
Ethernet/IP Bus interface			
EtherCAT Bus interface			
		CC-Link IE Field Basic Bus interface	

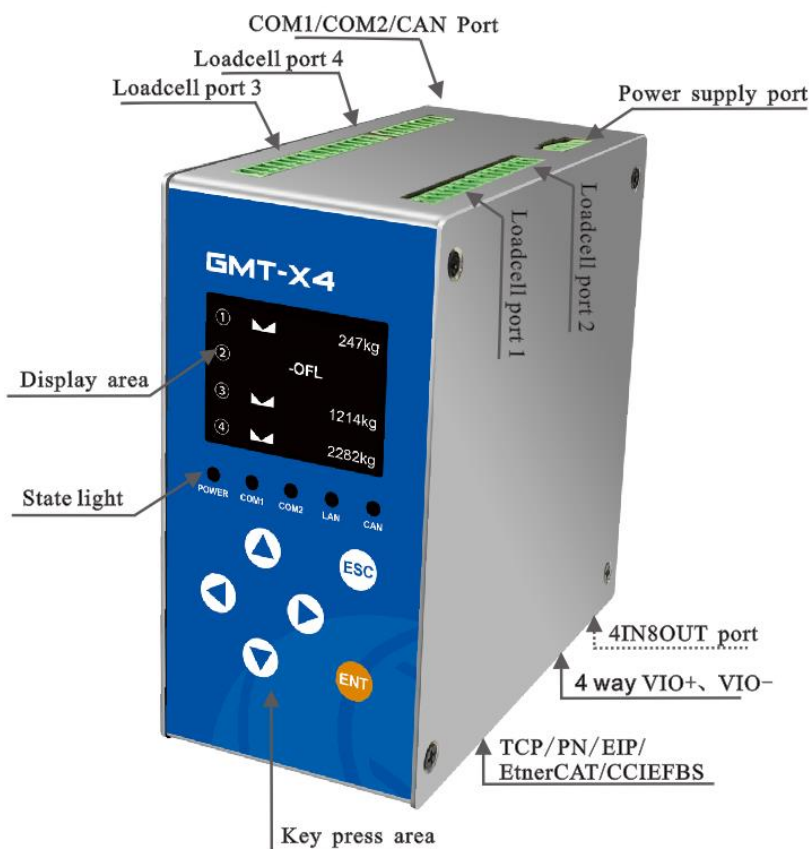
1.2 Technical Specifications

Power supply	24VDC (18~36VDC)
Dimension	61*132*126(mm)
GW	883g
Certified working environment	-10~40℃; 90%R.H without dew
Working	-20~60℃; 90%R.H without dew

environment	
Storage environment	-40 ~ 60°C ; 90% R.H without dew
Load cell excitation voltage	5V 200mA (MAX)
Load cell requirements	4 simulated Loadcell, connect 40 350 Ω load cells, most support 1 mv/V, 2 mv/V, 3 mv/V sensitivity
Input sensitivity	0.1uV/d
Input range	0.002 ~ 15mV (load cell 3mV/V)
Non-linearity	0.01% F.S
A/D conversion speed	50; 60; 100; 120; 200; 240; 400; 480; 800; 960 (SPS)
Display Precision	1/1000000
Keyboard	6 key sound keyboard
Decimal Places	0, 0.0, 0.00, 0.000, 0.0000; 5 options
Overload	OFL

2. Panels and buttons

2.1 Front Panel Description




Status :

- **Power:** lights up when indicator is power on
- **COM1:** Communication indicator. After the RS485 connection is successful, the indicator blinks during data communication
- **COM2:** Communication indicator. After the RS232 connection is successful, the indicator blinks during data communication
- **LAN:** Communication indicator. This indicator blinks during network port communication or bus communication.
- **CAN:** Communication indicator blinks when CAN communicate.

2.2 Key specification

GMT-X4 has 6 button functions, short press and long press have differences, button diagram is shown as below:

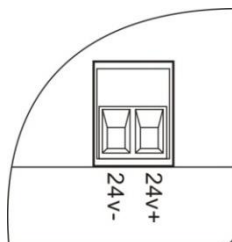
Key	Interface	Short press	Long press
	Main	Weight/analog display	Switch displaying the weight and the voltage values of load cell
	Menu interface	Previous Sub Parameter	/
	Data input	Data +1	Switch Capital

	Option select page	Previous Sub Parameter	/
▼	Main	Tare /Clear tare	Gross/Net mode shift: gross/net mode
	Menu interface	Next Sub Parameter	/
	Data input	Data or letter- 1	/
	Menu interface	Next Sub Parameter	/
◀	Main	Check the tare value	Quick set tare,set tare value
	Menu interface	Previous main parameter	/
	Data input	Input position move to left	/
	Option select	/	/
▶	Main	/	Quickly enter the automatic zero calibration interface, through which you can perform zero calibration operations in combination mode or independent mode
	Menu interface	Next main parameter	/
	Data input	Input position move to right	/
	Option select	/	/
ENT	Main	Menu page	Quickly view the front and back software versions and compilation dates
	Menu interface	Comfirm Selection	/
	Data input	Comfirm Selection	/
	Option select	Comfirm Selection	/
ESC	Main	Quick zeroing (gross mode valid)	/
	Menu interface	Return to previous level	/
	Data input	Exit	/
	Option select	Back to Weight Display page	/

3 Installation and Wiring

3.1 Connection of Power Supply

GMT-X4 weighing transmitter connects with DC24V power supply as follows:



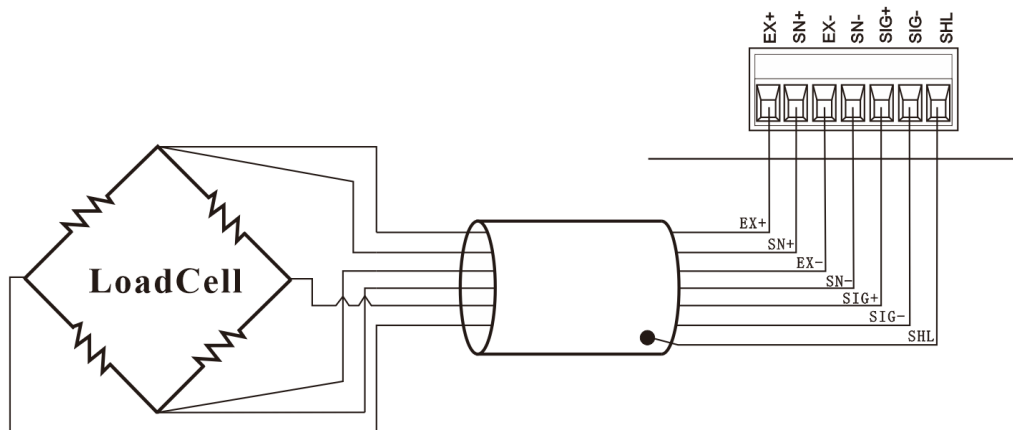
NOTE: The transmitter uses DC24V power supply, use AC220V power will cause permanent damage to the transmitter.

3.2 Connection of Load Cell

GMT-X4 weighing transmitter connects with bridge type resistance strain gauge load cells: (Note: n=1,2,3,4)

PORTS	EXn+	SNn+	EXn-	SNn-	SIGn+	SIGn-	SHL
6 wires	EX+	SN+	EX-	SN-	SIG+	SIG-	SHL
4 wires	EX+		EX-		SIG+	SIG-	SHL

※When connected to a 4-wire load cell, the EXn+ and SNn+ ports, EXn- and SNn- ports must be short-connected. Otherwise, the transmitter weight data reading is not normal.

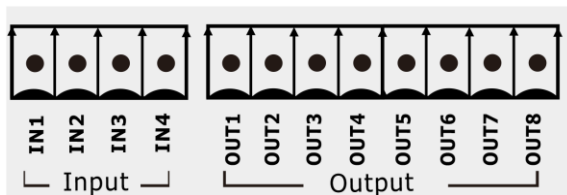


NOTE:

1. As the output signal of the load cell is an analog signal sensitive to electronic noise, shielded cables should be used for load cell wiring and laid separately from other cables, especially away from AC power supply
2. For the occasions with short transmission distance and little temperature change or low accuracy requirements, four-wire load cell can be selected. However, for applications requiring high transmission distance or accuracy, a six-wire load cell should be selected.
3. For the application of multi-load cell parallel connection, the sensitivity (mV/V) of each load cell should be consistent.

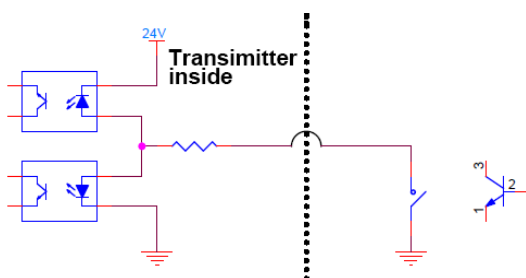
3.3 Connection of I/O Terminal

GMT-X4 weighing transmitter I/O module is an optional interface function, need to declare before order, 4 IN 8 OUT, Standard IO input, output connector factory default low level is valid. Adopt transistor output mode, each drive current 200mA.



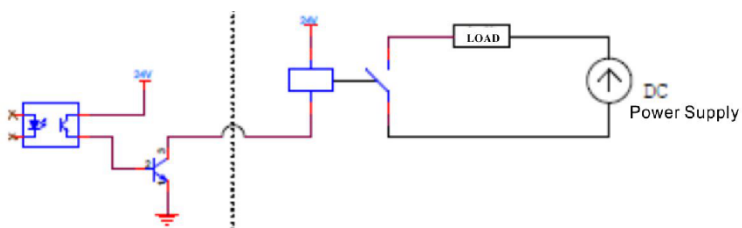
IO Port Diagram

Input diagram:



Low level mode

Output diagram:



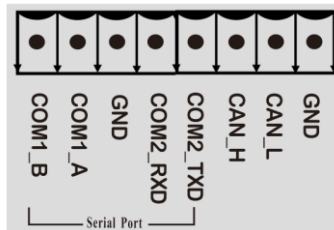
Low level mode

The default definition is as follows:

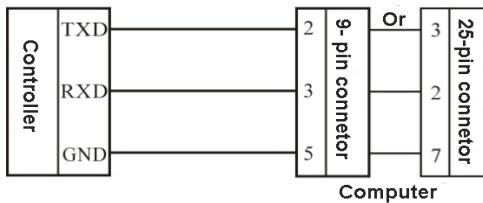
Output		Input	
OUT1	NONE	IN1	NONE
OUT2	NONE	IN2	NONE
OUT3	NONE	IN3	NONE
OUT4	NONE	IN4	NONE
OUT5	NONE		
OUT6	NONE		
OUT7	NONE		
OUT8	NONE		

3.4 Serial port connection

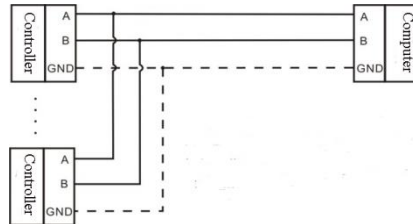
GMT-X4 are configured with two serial ports: one RS485 port and one RS232 port.



RS232 connection mode:



RS485 connection mode:



✳GND is ground of RS485, it can very much improve communication quality via connecting with GND by low-resistance wire when there is a lot of disturbance in working field.

✳ GND must be connected in RS232 mode

3.4.1 Serial port fault troubleshooting

If serial port can't communicate, please check:

- Refer above to check line, make sure connection is correct.

RS232 must connect 3 lines, **Rx, Tx,GND**

RS485 must connect line **A, B**

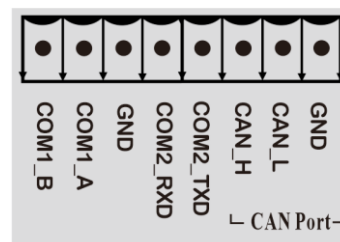
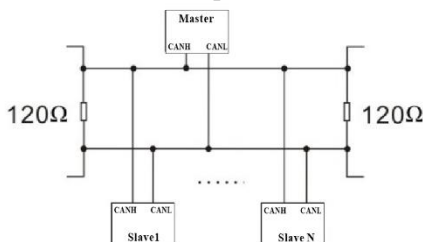
- Make sure connecting port parameters are the same to computer.

COM ID,baud rate, data format and communication protocol must consistent with the computer and PLC.

3.5 CAN connect

Support **1** way **CAN** communicate interface, can communicate with computer. GMT-X4 module can connect to bus network as a slave station module, badu rate support **100K, 125K, 250K, 500K, 1000K**.

Connct to **CAN** bus network, connect method refer to below charts, note bus network terminal need to add adaptive resistance.



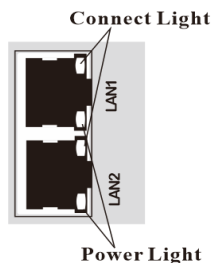
3.6 NetCOM Connection

GMT-X4 Support TCP-IP NetCOM and bus port. Support modbus TCP protocol, Profinet, Ethernet CAT, EthernetIP, CC-Link IE Filed Basic bus communication protocol. (optional fuction,make statement when order) .

1) When choose NetCOM, support TCP protocol; LAN 1 can communicate, LAN2 disabled temporarily

2) When **communicate with PN/EIP/CC-Link IE Filed Basic**, it can be connected to any network port of the instrument for communication.

3)Ethernet CAT communication, LAN2 as the entrance, and more than one device connection, between the devices to serial connection, distinguish the entrance and exit order.



3.6.1 Troubleshooting Network Port Faults

If Network can't communicate, please check:

○ Check Network indicator light

1) When communicating with a single network port/PN/EIP, check if the hardware connection is normal and if the instrument power light is always on. The network cable connection is normal, and the connection light is flashing. 2)When communicating with Ethernet CAT/CC-Link IE Filed Basic, check if the instrument power light is on/flashing, and if the connection light is constantly off.

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

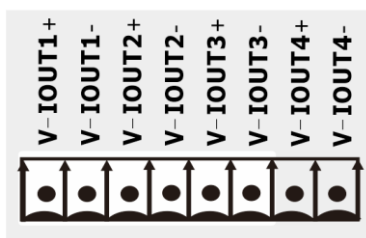
○ Verify that GMT-X4 can be pinged from the network, if not, check the hareware interface section.

○ Check whether IP address conflicts exist

○ Restart transmitter

3.7 Analog connection

GMT-X4 has analog output function (optional fuction,make statement when order), can equipped with 4 analog output function. Each channel corresponds to one analog output function. Interface is as follows: **V-IOUTx+** (+), **V-IOUTx-** (-) (Note: x=1~4, means 4 channels)

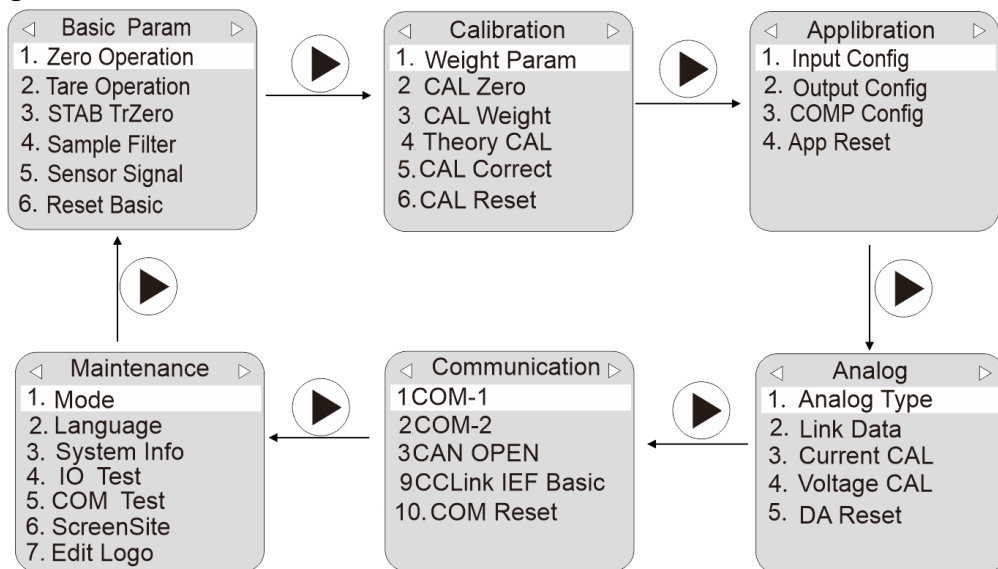


Analog output is divided into voltage output type and current output type, support **0~5V**, **0~10V**, **4~20mA**, **0~20mA**, **0~24mA**. User can select the corresponding mode in the output mode of analog quantity pparameter.

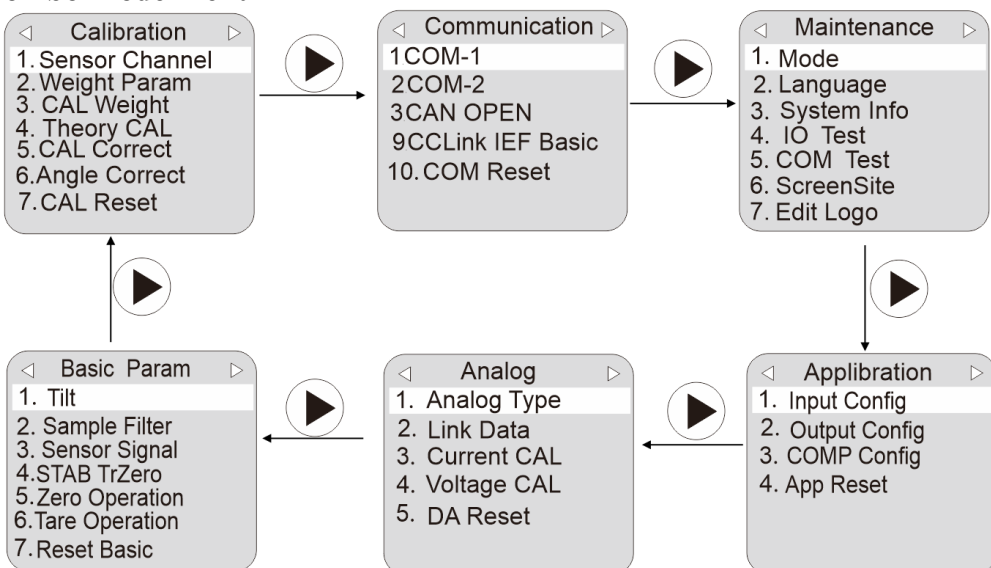
Analog mode, Analog CAL, please refer to section [8](#) [Analog Parameter](#).

4 Menu Review

Independent Mode Menu

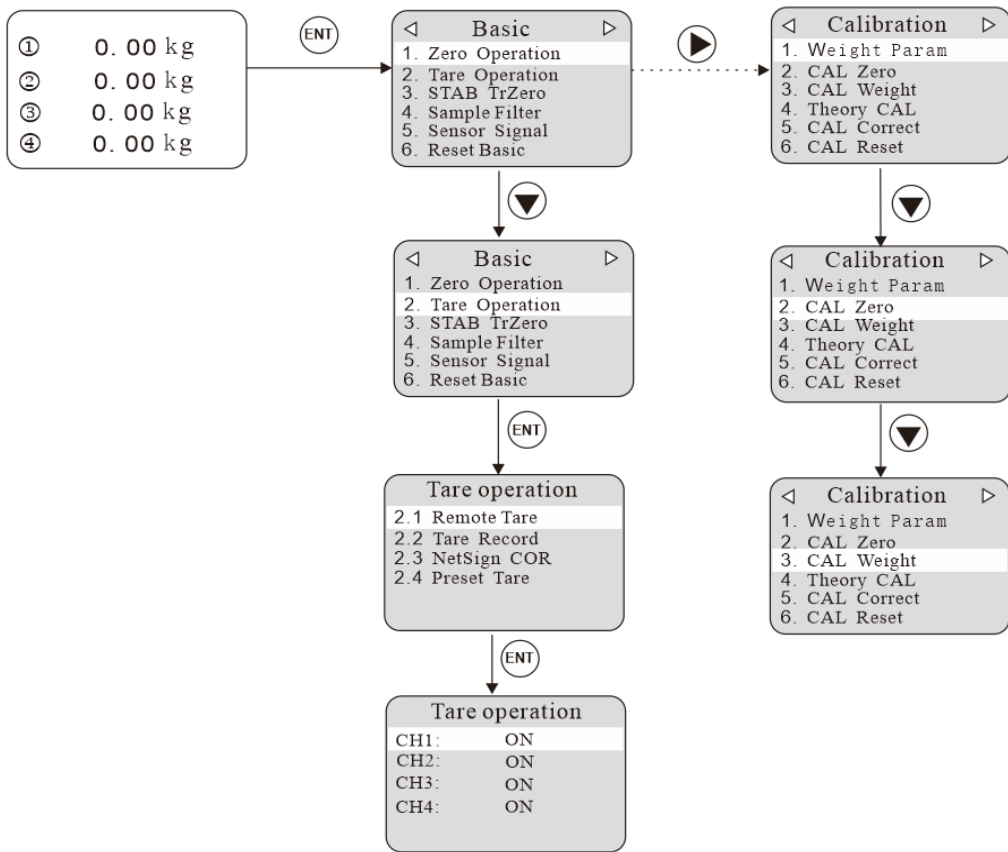


Combo Mode Menu

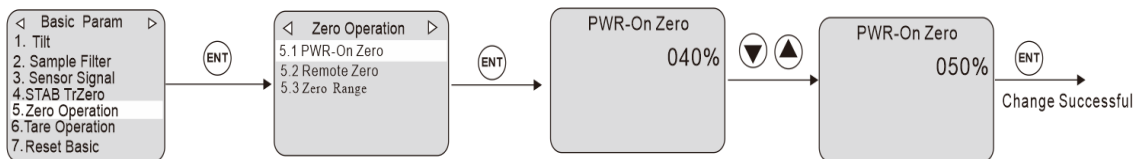


4.1 Parameters selection and setting

Parameters selection: (Taking the parameter item of tare operation switch for four channel instrument selection in independent mode as an example)



Parameter value Setting: (Set PWR-On Zero reset range from 49% to 30%)



- ※ After setting completed, press **ENT** key, finish the parameter setting.
- ※ When setting, press **ESC** key, exits current parameter item entry.
- ※ Refer to the 2nd chapter to the specific meaning of the key **【Key specification】**

5. Basic Parameter

5.1 Content

Parameter Item	Default	Description	Mode
1. Zero Operation		Set CH1~4 or combo channels Zero Parameter	
1.1 PWR-On Zero	0	Range: 0~101 (×full range %); 0 : turn off PWR-On Zero; 1-100 : according full range 1-100% zeroing; 101 : reset to last zero before turn off.	Indep/Combo
1.2 Remote Zero	ON	After set ON, the zeroing operation can be carried out through the communication port.If set to OFF, can not be zeroing through the communication port.	Indep/Combo
1.3 Zero Range	20%	Range: 1~99 (×full scale %)	Indep/Combo
2. Tare Operation		Set CH1~4 tare Parameter	
2.1 Remote Tare	ON	Range: OFF :can't communication to tare ; ON :can communication to tare	Indep
2.2 Tare Record	OFF	Range: OFF ; ON : Reset after power off, still maintant previous tare value.	Indep
2.3 NetSign COR	Disable	Range: Disable; Correct Tare; BackToGross	Indep
2.4 Preset Tare	0	Range: 0 ~full scale;write tare value.	Indep
3. STAB TrZero		Set CH1~4 or combo channels STAB TrZero Parameter	
3.1 STAB Range	1d	Range: 0-99 , When the parameter is 0,Turn off the STAB function and the weight STAB marker is always in effect.When the parameter is not 0, the weight is stable if the weight variation range is not greater than the setting value during the stability determination time.	Indep/Combo
3.2 STAB Timer	1000ms	Range: 1-5000 Milliseconds.If the weight range does not exceed the STAB range during that time, the weight is stable	Indep/Combo
3.3 TrZero Range	0d	Range 0-99d .Turn off the zero tracking function when the parameter is 0.When the parameter is not 0, the weight change is less than the range of zero tracking time, the system will automatically track zero.	Indep/Combo
3.4 TrZero Time	1000ms	Range 1-5000ms , during the tracking time, if the weight change is less than the tracking range, the system will automatically track the zero position	Indep/Combo
4. Sample Filter		Set CH1~4 or combo channels filter Parameter	
4.1 Digit-Filter	4	Range: 0-9 ; The larger the number is, the higher the filtering intensity will be, but the response time will be longer.	Indep/Combo
4.2 Adv. Filter	00	Range 0-99d , At 0, the steady-state filter is	Indep/Combo

		turned off. When the parameter is non-0, if the weight change is within the range, then the steady-state filter is started	
4.3 Sample Rate	200	Range: 50; 60; 100; 120; 200; 240; 400; 480; 800; 960 (SPS)	Indep/Combo
5. Sensor Signal		Set CH1~4 signal range	
5.1-5.4 CH1-4	0-10mV	Range: 0-5mV; 0-10mV; 0-15mV; -5-5mV; -10-10mV; -15-15mV, Transmitter according input range to adjust signal sampling range to make sure more specific	Indep/Combo
6. Reset Basic			
6.1~6.4 Reset CH1-4	//	Reset factory defaults to each Channel Parameter	Indep/Combo
Combo Parameter			
Tilt	0	Range: 0~999999; When the weight difference between the two corners reaches this threshold, a tilt alarm will be triggered for the material filling; Set to 0 without alarm.	Combo

5.2 Zero Operation

Zero success condition:

- 1) Weighing platform stable;
- 2) Weight is in zero range.

Zero operation:

- 1) Press Zero;
- 2) Zero input port is valid;
- 3) communicate port zero (Remote Zero is ON)

5.3 Tare function

Tare operation ON/OFF:

ON/OFF communication port with IO tare; This set to ON for tare setting operation.

Tare Record:

ON/OFF Tare Record function. If turn ON, power off restart, retain tare weight.

NetSign COR:

Disable: NetSign have no operation.

Correct Tare: When transmitter in net weight status, the net weight is negative and weight is stable, then indicator will correct tare value to ensure Net weight is not negative.

BackToGross: When transmitter in net weight status, the net weight is negative and weight is stable, then indicator will back to gross weight status

Preset Tare:

Set tare weight, if the value is not 0, then this tare weight is used for tare.

※NOTE: ① The transmitter is in GW state, when clear tare, transmitter record tare weight, enter NW mode.

② The transmitter can't be ZERO in the mode of NW display.

6. Calibration

When **GMX-T4** weight transmitter or any part of the weighing system is changed for the first time and the current equipment calibration parameters can't meet the user's requirements, the display shall be calibrated. Calibration can determine the system zero and gain of the weighing system.

6.1 Weight Format

Parameter Item	Initial Value	Decription
1. Weight Param		
1.1 Unit	kg	Range: t; kg; g; lb
1.2 Decimal	0	Range: 0; 0.0; 0.00; 0.000; 0.0000
1.3 Division	1	Range: 1, 2, 5, 10, 20, 50
1.4 Full Scale	999999	The maximum value of the transmitter is generally taken as the range of the load cell. Range: Division * 1000000 Configurable. When the Range is over ("data over Range"), a message is displayed to prevent the weighing overvoltage from damaging the load cell.
2. CAL Zero		
CH1~CH4 or combo channels CAL Zero operation		
2.1 Auto Capture	After emptying the scale, press the "OK" button and set the current state to zero.	
2.2 Key In mV	Manually and manually input the voltage of 4 decimal points as the zero point voltage	
3. CAL Weight		
CH1~CH4 or combo channels CAL Weight operation		
CH1~CH4/ combo channels	Weight CP 1	Calibrate weight points, support 5-point calibration.
	Weight CP 2	When the front point is calibrated, the other weight points will be reset to the uncalibrated state (the default value is 10.0000mV, 10000kg).
	Weight CP 3	
	Weight CP 4	If the marking point 1 is performed, the marking point 2-5 is reset to 0
	Weight CP 5	
4. Theory CAL		
CH1~CH4or combo channels Theory CAL		
4.1 LC mV/V	2.0000	True load cell sensitivity, 4 decimal points, average sensitivity if multiple load cells
4.2 LC Capacity	10000	The true load cell range, if there are more than one load cell, is the sum of all load cell ranges
4.3 Use T-CAL	ON	Enable calibration of theoretical values and make them effective. Range: OFF; ON. In combo mode, if the parameter is set to ON, only weight free calibration can be performed, and the weight calibration display shows "Currently in Theory CAL mode". When set to OFF, a weighted calibration method can be used.
5. CAL Correct		
CH1~CH4 or combo channels CAL Correct		

5.1 Correct Coef	1.00000	After calibration, if the zero point is correct, the weight has deviation, which can be used to correct the weight value. The value calculation: if the transmitter weight is A, but the weight after weighing is B, the correction coefficient is calculated: (actual weight × current correction coefficient)/B shows A weight
6. CAL Reset		
Reset CH 1-4/ or combo channels	//	The calibration parameters of each channel are restored to factory Settings, and the reset is successful by pressing the [ENT] confirm key.
Sensor Channel	//	In combo mode, set channel combinations. Press the switch button <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> to select the corresponding channel combination. When using a four channel instrument, up to four channels can be combined. Note: The mode parameter under 【Maintenance】 parameters is set to combo mode, which is valid
7.Angle Correct (The mode parameter under 【Maintenance】 parameters is set to combo mode, which is valid)		
Correct Coef	1.00000	The angle difference coefficient of the selected channel can be manually modified, that is, the angle difference coefficient is displayed according to the number of channels. When the level or height of the weighing items carried are inconsistent, it can cause weighing errors. In this case, it is necessary to adjust the angle difference coefficient to ensure the normal operation of the system. Range: 0.00000~8.00000 .
Correct Samp	//	Confirm the angle difference sampling, follow the prompts to perform the corresponding operations (prompt whether to clear the weighing platform, otherwise exit the angle difference sampling, yes start the angle difference sampling, select any angle loading weight for angle compression, stabilize, press confirm, and after completing the sampling, check the correct coef will change accordingly). (Note: The number of pressing angles is determined by the number of selected channels, and the pressing angle order is carried out from small to large according to the selected channel number)
Correct Reset	//	Confirm the angle difference reset and reset the angle difference coefficient to the default value of 1.0000.

Note: ①Before sampling the angle difference, it is necessary to reset the angle difference. If it is unstable during the process, an alarm will sound "Sampling is unstable". After sampling is completed, if the calculated coefficient has a negative value, it will prompt "Angle difference sampling error". ②The parameter calibration parameters for the combination mode can be found in the table above.

6.2 CAL Zero

Zero calibration is the zero calibration of the scale.

Zero calibration can be done in two ways: automatic zero acquisition and manual input. The “Auto Capture “method must be used for zero calibration when new equipment or weighing structure is adjusted.

Auto Capture:

Calibration conditions: stable scale

Transmitter displays current millivolt. In independent mode, it represents the current millivolt value of each channel. In combination mode, it represents the sum of the selected channel sensor voltage values and/or the millivolt value of the combined channel number.

After empty the scale, press ENT to calibrate the current state to zero.

Indep Mode(Four Channels)

CH-1	0. 2388mV
CH-2	0. 1288mV
CH-3	0. 4838mV
CH-4	0. 1288mV

Combo Mode

Auto Proof	
WT:	0kg
1#	00.1022mV
2#	00.1623mV
3#	00.2103mV
4#	00.1175mV
L-Press ENT Zero CAL	

Key In mV:

User need key in voltage value of ZERO point to calibrate ZERO. In combo mode, manually calibrate the zero point through the 【One Key In mV】 parameter. If a certain sensor channel is inaccurate, the corresponding channel zero can be calibrated through

【Key In mV】 .

Indep Mode(Four Channels)

CH-1	0. 2388mV
CH-2	0. 1288mV
CH-3	0. 4838mV
CH-4	0. 1288mV

Combo Mode

LC mV/V Zero	
Current V:	02. 0215mV
Modify V:	+00.1023mV
Press ▶ to WT CAL	

※Generally used for no-weight calibration, the value recorded by the data recorded during the calibration of the weights is used for Key In mV.

6.3 CAL Weight

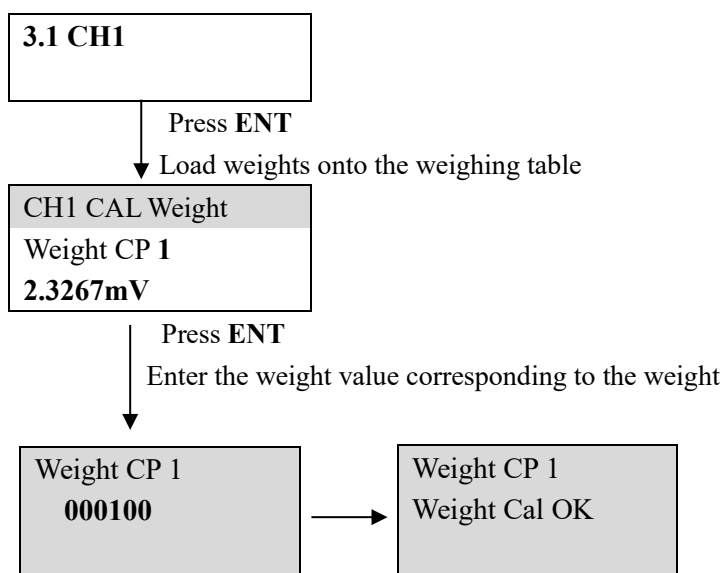
Cal weight is to use standard weights for weight calibration.

Supports 5-point calibration, providing users with the maximum ability to select calibration points according to their needs.

Calibration method (take CH1 for example):

※ Zero calibration should be completed before weight calibration

CAL Weight



Multi-point calibration attention:

- 1) User can choose the number of marking points, such as single point calibration, which can be withdrawn after the first weight point is calibrated
- 2) Cross-point calibration is not allowed. For example, when using 3-point calibration, it is necessary to calibrate the Weight CP1, 2 and 3, but it is not possible to calibrate the Weight CP3 and 4 by crossing the Weight CP2 after the completion of the Weight CP1
- 3) In the multi-point calibration, the weight should be increased. For example, the weight of Weight CP2 must be heavier than the weight of Weight CP1

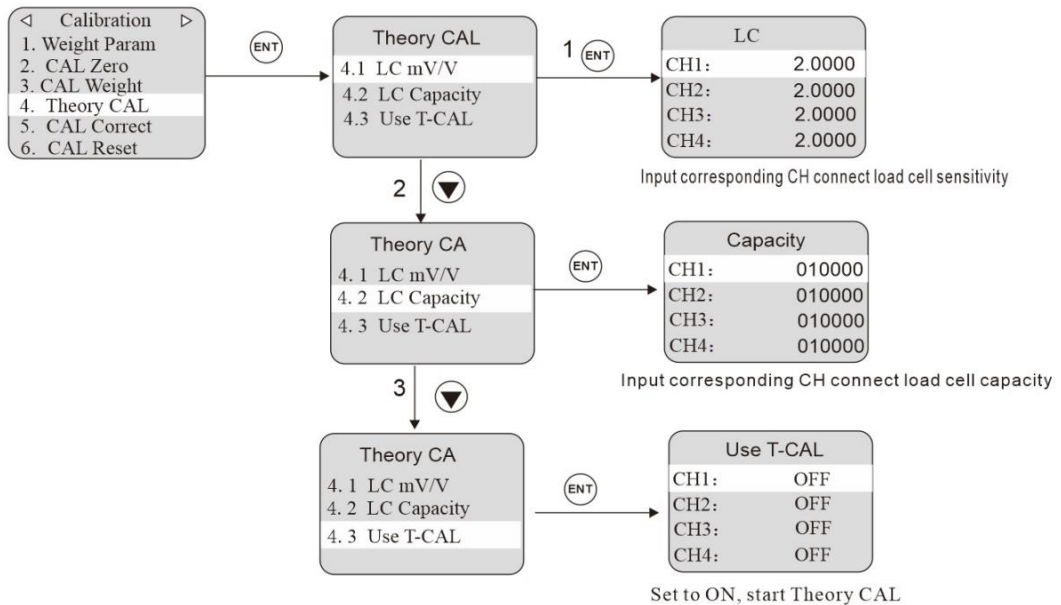
6.4 Theory CAL

Calibration of theory value means that weight calibration is performed by inputting load cell sensitivity and load cell range value

Theory CAL takes 3 steps:

- 1) Set load cell sensitivity (If multiple load cell are connected, input the mean value)
- 2) Set total range of the load cell (If connected to more than one load cell, input total range)
- 3) Turn on "Use T-CAL" key.

Taking the theory CAL in independent mode as an example, in combo mode, the theoretical value switch needs to be turned on before entering the weight free calibration interface. For others, follow the same steps above to calibrate the theoretical value.



6.5 CAL Instructions

The principle of instrument calibration is consistent whether in combo mode or indep mode. There are two calibration methods: weighing with weights and weighing without weights (i.e. theory CAL).

6.5.1 Weight CAL Steps

a) CAL Zero:

First, perform zero calibration. There are two methods for zero calibration, which can be referred to in section [6.2 CAL Zero](#).

Through the [**Auto Capture**] method: In indep mode, it is necessary to separately zero calibration of each channel press **ENT** button in the [Auto Capture] mode; In combo mode, long press the button **ENT** to perform zero point calibration on the combined channel under [Auto Capture].

Through the [**Key In mV**] method: In indep mode, input the zero voltage values of each channel in the [[Key In mV], and perform zero calibration on each channel press **ENT** button; In combo mode, enter the zero calibration voltage value at the voltage modification point in **【One Key In mV】**. Press the button **ENT** to complete the zero calibration and enter the weight calibration.

b) Weight CAL:

After completing zero point calibration, perform weight calibration. Whether in combo mode or indep mode, the method of using weights for calibration is the same: load weights and input weights. Differently, in indep mode, perform weight calibration on the required channels according to [6.3 CAL Weight](#). In combo mode, after performing zero point calibration, it automatically enters the weight calibration, and the

calibration method is carried out according to [6.3 CAL Weight.](#) Both support five point calibration, please refer to section 6.3 for details.

6.5.2 No weight CAL

Similarly, in combo mode and indep mode, the principle of weight free calibration is the same. Please note that in combo mode, it is necessary to set the [Weight Param] - [Use T-CAL] to ON in order to enter Theory CAL interface. Otherwise, it will display "Currently in CAL Weight mode".

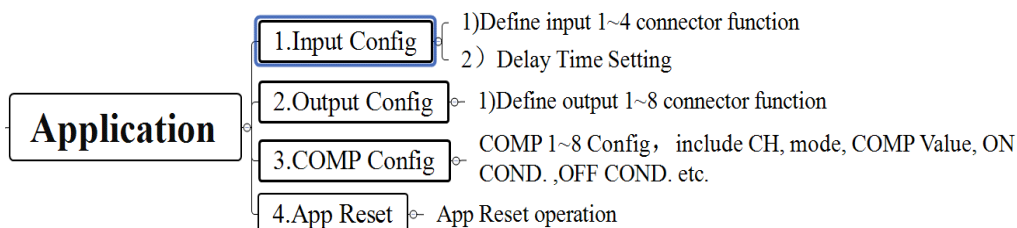
a) CAL Zero:

First, perform zero point calibration, refer to the instructions a) CAL Zero for [Weight CAL Steps in section 6.5.1.](#)

b) Theory CAL:

After the zero point calibration is completed, perform theoretical value calibration. In indep mode, enter the theory CAL under [Calibration] parameters, input the LC mV/V and LC Capacity, and the use T-CAL set to ON to complete the theoretical value calibration. In combo mode, the theoretical value effective switch needs to be turned on before entering the weight free calibration interface. After performing zero point calibration under the parameter of [Theory CAL], press ► enter the theoretical value calibration according to the method of [6.4 Theory CAL](#), which also requires input of LC mV/V and LC Capacity.

7.Application setting



7.1 Input Config

Input port configuration in the application parameter item. The transmitter is equipped with 4 input interfaces and 8 output interfaces, which can meet the function of 4 in and 8 out I/O.

The application function of input port 1~4 and the shaking time can be separately set. The initial default function is not available, and the customer can define it by himself.

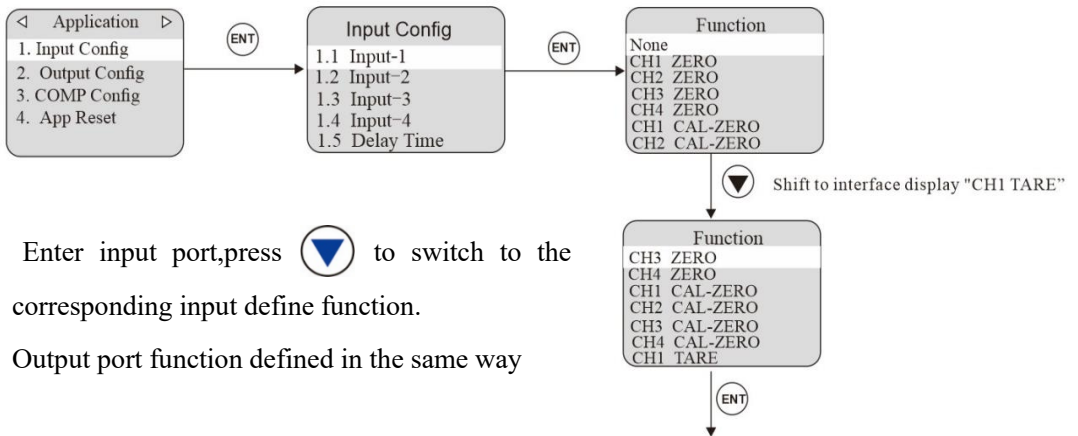
Parameter Item	Parameter Content	Specification
Input Config	Input 1~4 function	<p>Optional in indep mode: NONE, CH1~4 ZERO, CH1~4 CAL-ZERO, CH1~4 TARE, CH1~4 CLEAR-TARE, CH1~4 GROSS/NET, COMP-ON;</p> <p>Optional in combo mode: NONE, ZERO, CAL-ZERO, TARE, CLEAR-TARE, GROSS/NET, COMP-ON;</p> <p>※It is defined as nonfunctional that is, the input port is nonfunctional</p>
	Input 1~4 Delay Time	Avoid misjudgment caused by signal jitter. Initial Value: 5ms ; Range: 0-200ms

Input fuction description:

Function		Description
Indep mode	Combo mode	
NONE	NONE	The input port is nonfunctional.
CH1~4 ZERO	ZERO	When this signal is valid, start zeroing
CH1~4 CAL-ZERO	CAL-ZERO	This signal is valid, starts CAL ZERO
CH1~4 TARE	TARE	This signal is valid, starts tare
CH1~4 CLEAR TARE	CLEAR TARE	This signal is valid, starts clear tare, means recover clear tare weight
CH1~4 GROSS/NET	GROSS/NET	This signal input is valid, starts NET/GROSS shift.
COMP-ON	COMP-ON	This function is defined. The output of the comparison point is controlled by the state of the I/O port. If the comparison condition is valid and the input is valid, the comparator output will be valid; otherwise, it will not be output. If this function is not defined, the comparison

		condition holds and there will be output, which is not controlled by the input port.
--	--	--------------------------------------------------------------------------------------

Example: Define Input2 as TARE



- ※ Enter input port, press to switch to the corresponding input define function.
- ※ Output port function defined in the same way

7.2 Output Config

Output port configuration apply to the transmitter of application parameter item. The functions of output 1-8 can be set. The initial default is no function, but the customer can define it by himself.

Parameter Item	Parameter Content	Specification
Output Config	Output 1-8 function	<p>Optional in indep mode: NONE,COMP 1-8, CH1~4 STAB,CH1~4 ZERO,CH1~4 NET, CH1~4 -SIGN;</p> <p>Optional in combo mode: NONE,COMP 1-8, STAB, ZERO, NET, -SIGN;</p> <p>※Define no function means Output no function</p>

Output function description

Function		Description
Indep mode	Combo mode	
No function	No function	No output
COMP 1-8	COMP 1-8	Comparator 1-8 has output when conditions are met;If the input port is set to COMP-ON , the input is valid and the comparator has an output.
CH1~4 STAB	STAB	Transmitter stab signal output is valid
CH1~4 ZERO	ZERO	Transmitter zero indicate light valid output is valid
CH1~4 NET	NET	When transmitter is in net weight, output is valid
CH1~4 -SIGN	-SIGN	When display weight less than 0, output is valid

7.3 COMP Config

In the comparator configuration, can set the comparison channel 1~8, comparison mode, comparison condition, ON COND. and OFF COND.

GMT-X4 provides **8** comparators,the parameters are 3.1 to 3.8. The parameters of each comparator are set in the following table. Comparator 1 is used as an example.

Parameter Item	Specification
COMP CH	This parameter is visible in independent mode. Which channel is compared: CH1, CH2, CH3, CH4. default: CH1
COMP Mode	Weight judgment: Optional: OFF;OFF;W<=CV1;W=CV1;W!=CV1;W>=CV1;CV1<=W<=CV2; W <[CV1,CV2]>W ※If current weight is NET, the weight is NET, if current weight is gross weight, the weight is gross weight.
COMP Value-1	Higher priority comparison value. When there is only one comparison parameter, this comparison value is used by default. Initial value: 0 ; Range: -999999-999999 . (Press the up and down arrow to switch between positive and negative signs)
COMP Value-2	When two comparison values are used, the value must be greater than the COMP Value-1. Initial value: 0 ; Range: -999999-999999 (Press the up and down arrow to switch between positive and negative signs)
ON COND.	When the comparison is successful, the transmitter outputs additional constraints that are valid. Initial value: Immediately; Option: 1, Immediately (Output immediately as long as the comparison condition holds); 2,Stable (Output is provided when the comparison condition is valid and the current weight is stable); 3, Debounce (The output is displayed after the success time exceeds the decision time)
TRUE JudgeT	Initial value: 1000ms ; Range: 0~5000ms
OFF COND.	An additional restriction that invalidates the transmitter output when the comparison changes from success to failure; Initial value: Immediately; Option: Immediately,Stable,Debounce (The failure time becomes invalid after the failure time exceeds the FALSE HoldT)
FALSE HoldT	Initial value: 1000ms ; Range: 0~5000ms

7.4 Application Example

Example 1: Output 1 is valid when the weight is >=500g and stable; Output 1 is invalid when the condition is not met and stable.

Setting: 1) Output Config → Output -1 Set to: COMP 1

2) Compare mode set to: **W>=CV1**

3) COMP Value-1 Set to: **500**.

4) COMP Value-2 is set to: **0** (single point comparison, this parameter is meaningless).

5) ON COND. set to: Stable ,output after the weight is stable.

6) TRUE JudgeT: **0** (non-delay mode, this parameter is meaningless).

7) OFF COND. set to: Stable, invalid after the weight is stable

8) FALSE HoldT: **0** (non-delay mode, this parameter is meaningless)

※ If the weight is greater than or equal to **500g**, the steady state has been invalid, the output 1 will not be switched to the effective state.

Example 2: The weight is not **between 200g and 500g**, the output 4 is effective after **5ms**

delay, **if the condition is not met, the output 4 is invalid after 5ms delay.**

Setting: **1) Output Config → Output -4 Set to: COMP 1**

2) Compare mode set to: $W < [CV1, CV2] > W$.

3) COMP Value-1 Set to: 200.

4) COMP Value-2 is set to: 500 (this setting value should be greater than comparison value 1).

5) ON COND. set to: delay output.

6) TRUE JudgeT: 5ms.

7) OFF COND. set to: delay output.

8) FALSE HoldT: 5ms.

Example 3: If the input switching quantity is set to **COMP-ON** function and the weight is between 200g and 300g, the immediate output is effective. If the conditions are not met, the immediate output is invalid.

Setting:

1) Switching quantity input port IN1 is set to: Enable comparison point.

2) Output Config → Output -1 Set to: COMP 1

3) Compare mode set to: $CV1 \leq W \leq CV2$.

4) COMP Value-1 is set to: 200.

5) COMP Value-2 is set to: 300 (this item set value should be greater than compare value 1).

6) ON COND. set to: Output immediately.

7) TRUE JudgeT: 0ms (non-delay mode, this parameter is meaningless).

8) OFF COND. set to: Output immediately.

9) FALSE HoldT: 0ms (non-delay mode, this parameter is meaningless).

If the weight is between **200 and 300g**, although the comparison condition is met, the comparator will not output immediately until the input of the enable comparison point is effective; If the conditions are not met, the output will be invalid immediately.


8. Analog Parameter

In the independent mode of GMT-X4, up to 4 analog output functions can be optional (for four channel instruments), with each channel corresponding to one analog output. For details about analog port connections, see Chapter 3.7. The analog parameters corresponding to CH 1 to 4 are as follows:

8.1 Analog parameter description

Parameters	Initial value	
1. Analog Type	4-20mA	Analog output mode ,range: 4-20mA, 0-20mA, 0-24mA, -5V-5V, -10V-10V, 0-5V, 0-10V.
2. Link Data	Weight	Analog associated variable ,range: Weight, Net, Gross. Analog correspond to the weight form
3.Current CAL	Detail operation refer to 8.2 analog calibration	
4. Voltage CAL		
5. DA Reset	/	current analog parameter reset to factory setting value

8.2 Analog calibration

Analog Output mode can choose current/voltage. In the normal display state, you can press  to view the analog output values of the four channels. The format is X. XXmA/V.

The output of analog quantity has been calibrated before delivery, so the user does not need to calibrate the output of analog quantity. If the output of analog quantity is abnormal, the user can calibrate the analog quantity by himself. The current and voltage calibration methods are the same. Here, the current calibration of CH1 is taken as an example (it is recommended to calibrate under the guidance of professionals):

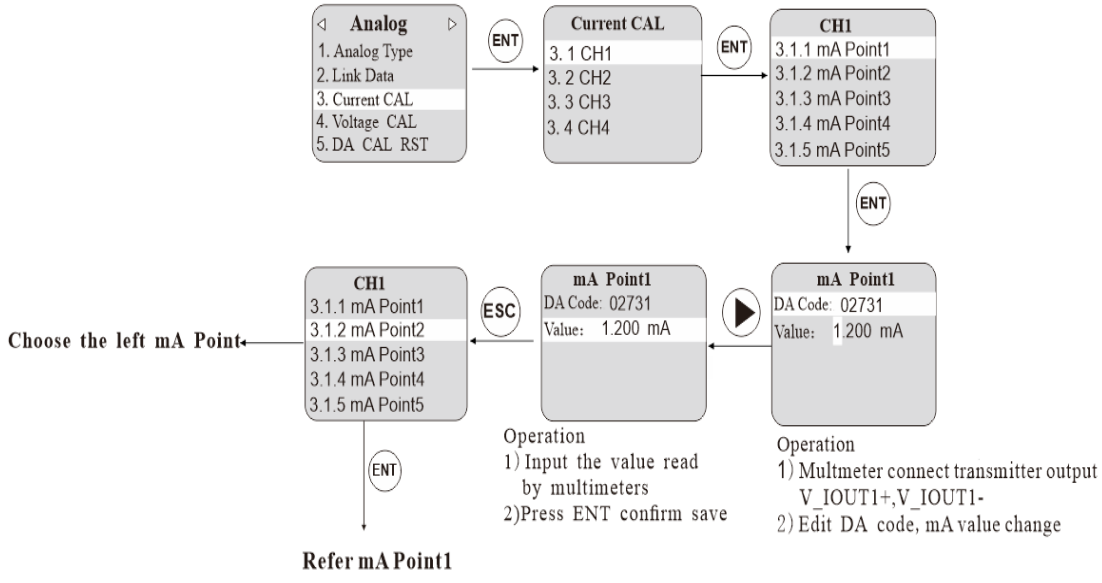
1) Switch to **【Analog】** under the **【3.Current CAL】** parameter.

2) The Analog current calibration can be carried out by adjusting the DA code and adjusting the current value. You can choose any one for analog calibration. Taking the current calibration point 1 as an example, the method is as follows:

i) Adjust DA code method: Connect the multimeter to the analog output interface and measure the current output value. The current value changes with the DA code. In the DA code input line, adjust the DA code and observe the current value of the multimeter until it is adjusted to the desired current value, which is the completion of calibration.

ii) Adjusting the current value method: Check the current measurement value of the multimeter, continue to press the ENT key on the DA code input interface, modify the current output value to match the measurement value of the multimeter, and the calibration is completed. The remaining points are calibrated according to the first point.

3) Current calibration supports 5-point calibration. The customer adjusts the calibration as needed.



9. Communication

GMT-X4 has various communication function interfaces: **COM-1 (RS485)**, **COM-2(RS232)**, Commom NetCOM (support TCP/IP protocol), CAN communication port and the bus port(support Profinet, **Ethernet-IP**, EtherCAT and **CC-Link IE Field Basic** bus protocol)。

9.1 Communication Parameters

Parameters		Initial value	Specification
COMx(x=1/2) parameter			
COMx ID		01	Range: 01-99
Baudrate		38400	Range: 4800,9600,19200,38400,57600,115200
Protocol		Modbus RTU	Range: Modbus RTU,GM-Cont.
Data Format		8-E-1	Range: 8-N-1, 8-E-1, 8-O-1,7-E-1, 7-O-1 Note: Modbus only support 8 data bits
Dword Format		AB-CD	Range: AB-CD (Hi low), CD-AB (Low Hi)
Send Gap		20ms	Under continuous transmission protocol, the time interval between frames. Range 0-5000ms ,default value: 20ms
CAN OPEN parameter			
CAN ID		01	Range: 1-127
Baudrate		250K	Range: 100K, 125K, 250K, 500K, 1000K
Report Type	Extended frame		Option: Standard frame, Extended frame
Report Content	Weight		Option: Weight, Voltage
Report Gap		20ms	Range: 0-5000ms
TCP-IP parameter			
IP		192.168.000.101	Range: 000.000.000.000-255.255.255.255
Subnet mask		255.255.255.000	Range: 000.000.000.000-255.255.255.255
Gateway		192.168.000.001	Range: 000.000.000.000-255.255.255.255
Connect1	Port	502	Range : 1-65535 , set the network communication socket No., 0 close the connection
	Protocol	Modbus/TCP	Standard network can set,Range include: protocol include: Modbus/TCP, GM-Cont/TCP
	Dword Format	AB CD	Range: AB CD, CD AB ; Standard network can set, Hi-Lo byte mode, when protocol is Modbus/TCP use
	Send Gap	20ms	When protocol is GM-Cont , this parameter is used for send gap time. Range: 0-5000ms
Connect 2~connect 6			Socket No. defaule value is 0 , other parameter refer connect 1's communicate parameter
Profinet/EthernetIP/CCLink IEF Basic			
IP		192.168.000.101	Range: 0.0.0.0~255.255.255.255
Write Switch		OFF	Range: OFF, ON ; (When choose PN/EIP/CCLink IEF Basic attached plate,this parameter can see) ON: PN/EIP/CCLink IEF Basic communicate,

		transmitter parameter is control by main site“module parameter”, when transmitter power on main site“module parameter” setting parameter auto write in. OFF: PN/EIP/CCLink IEF Basic communicate, transmitter parameter not control by main site”module parameter”
Data type	Float weight	PLC display type choose switch. Range: Int weight, Float weight, Float Voltage,AD Code
EtherCAT		
Write Switch	OFF	Option: OFF, ON. When turn on non cyclical parameter can write in
Station Alias	0	Site Alias ,Range: 0-65535
COM Reset		
This parameter is used to restore communication parameters to factory settings. Enter this parameter when resetting communication parameters. CAL/RST PWD, default: 000000 . Can revise PWD in this way 【Maintenance】 -- 【PWD Protect】 -- 【CAL/RST PWD】		

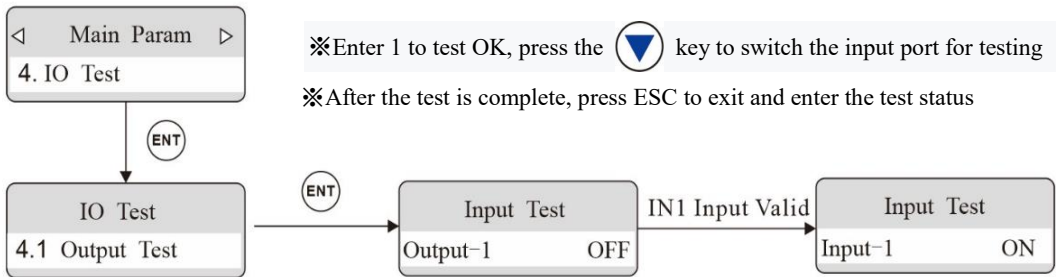
10. Maintenance

Parameters		Specification
1.Mode	Default: Indep mode;Optional: Indep mode ,Combo mode. The indep mode can view the weight and related parameters of the four channels used, while the combo mode requires selecting at least two channels for combination. After combination use, the weight value is the sum of the selected channel weight values/the number of combined channels, and the sensor voltage value is the sum of the selected channel sensor voltage values/the number of combined channels.	
2.Language	System language selection, Default: English; Chinese ,English Optional.	
3.System Info	Check the soft version,MAC address,serial number and V-Correct Coef of CH1~CH4. (Note: The parameters are visible in combo mode of voltage correction coefficient)	
4.IO Test	Perform hardware testing on the IO port, refer to 10.1 IO Test for specific operations.	
5.COM Test	Serial port testing function to detect the status of serial port connection. For specific operations, please refer to 10.2 Serial Port Test .	
6.ScreenSite	6.1ScreenSleep	Set screen off time. Default: 600s,Range: 0~3600s。 Set to 0 means no off time.
	6.2ScreenTest	When the screen is white and all indicators are on,the screen is normal.
7.Edit Logo	Edit Logo,support 8 character,only support digit,English letters and blank,"-".long press the up button change case,edit are protected by passwords.	
8.LoadCell Check	Display the sensor insertion detection switch for channels 1-4. ON and OFF are optional, and ON can be set to view the sensor status of this channel.	
9.PWD Protect	8.1PWD Param	8.1.1PWD Switch: When turn on PWD Switch,edit Param need to enter PWD 8.1.2PWD Edit: can edit Param PWD.
	8.2CAL/RST PWD	This parameter can be modified to enter the calibration parameters and reset PWD.
10.Remote Edit	When turn on remote edit,corresponding parameters can be operated through communication.	
11.Reset Factory	Restore maintenance parameters to factory reset.	

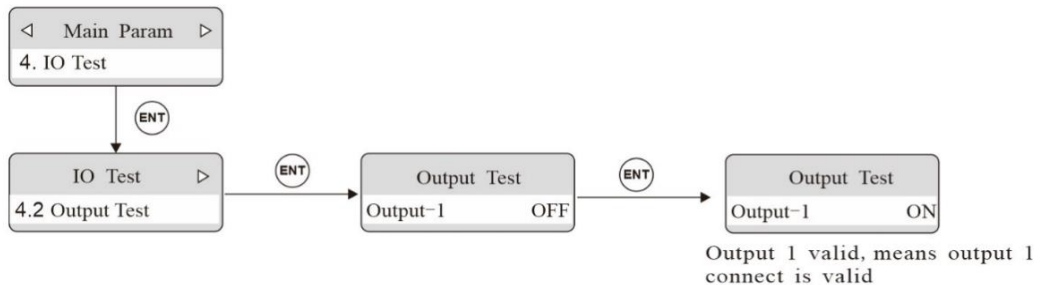
10.1 IO Test

IO test function is used to test whether the connection state of the input/output outlet is normal.

Input test:



Output test:



- ※Under the test state of the output port, press ENT to switch the external output state.
- ※External state can be converted with ENT key switch, indicating that the output port is normally connected.
- ※After the test is complete, press ESC key to exit the output test state.

10.2 Serial Port Test

Serial port test function, in a fixed baud rate (9600), data format (8-N-1) to send and receive data, to detect the serial port connection status.

10.2.1 Receive test

The external sends test data (ASCII code only) to the transmitter and displays the data on the display. The data length of each frame cannot exceed 10 bytes.

If the external sends **30 31 41** to the transmitter and the transmitter displays as shown in the figure below, then the **COM-485** connection is normal. COM-232 is the same method.

```

COM-485: 01A
COM-232:
  
```

10.2.2 Send Test

Send data "**COMx Test nnn**". If is **COM-485** then **X=1**, if is **COM-232** then **X=2**

11. Communication protocol and address

11.1 Modbus protocol

11.1.1 Function code and exception code description

Function code

Function code	Item	Specification
03	Read register	A maximum of 125 registers can be read at a time
06	Write a single register	
16	Write multiple registers	This transmitter command only supports writing to the double register. When writing, the address must be aligned. It is not allowed to write only part of the double register.
01	Read the coil	Note that this length is in bits.
05	Write the coil	

Note: Only supports above Modbus function codes. When sending other function codes the transmitter will not respond.

Exception Code Respond

Code	Item	Specification
02	Illegal data address	This error code indicates that the data address received is not allowed.
03	Illegal data value	The data written is not in the allowed range.
04	Computer	An unrecoverable error occurred while the transmitter was attempting to perform the requested operation.
07	Unsuccessful programming request	For the transmitter, the command received cannot be executed under the current conditions.

11.1.2 Communication Mode

RTU

- (1) When communicating in RTU mode, every 8 bits (1 byte) in the data is divided into two 4-bit hexadecimal characters
- (2) Mark the end of a frame with an interval of more than 3.5 characters. For a more reliable end, you are advised to use an interval of at least 4.0 characters

The specific protocol is as follows:

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

8 data bits, 1 stop bit, odd check (8-O-1)

8 data bits, 1 stop bit, no checksum (8-n-1)

Code: Binary

11.1.3 Modbus communication data sheet

PLC Address	Display Address	Meaning	Specification		
Weight status information Parameters(Effective in indep mode of channels 2 to 4)					
40001-40002	0000-0001	Current display resultant weight value (4-byte signed integer)			
40003-40004	0002-0003	CH2 current display weight value (4-byte signed integer)			
40005-40006	0004-0005	CH3 current display weight value (4-byte signed integer)			
40007-40008	0006-0007	CH4 current display weight value (4-byte signed integer)			
40009	0008	CH1 weight status signal byte	bit	Specification	
			D15	Reserved	※ Indicates the weight status. When it is the current state, the status bit displays "1". If the current weight is zero and stable, then the address D0D1 status bit is "1"
			D14	Load cell power short circuit(EXn+EXn-short circuit)	
			D13	Load cell unplugged	
			D12	Reserved	
			D11	Weight is calculated using theoretical values	
			D10	ADC breakdown	
			D9	Current display NW	
			D8	Million volts stable	
			D7	Load cell -overflow	
			D6	Load cell +overflow	
			D5	Weight -overflow	
			D4	Weight +overflow	
			D3	Overflow state	
D2	display weight -				
D1	Zero				
D0	Stable				
40010	0009	CH2 weight status signal bit	Details please refer CH1 weight status signal bit.		
40011	0010	CH3 weight status signal bit	Details please refer CH1 weight status signal bit.		
40012	0011	CH4 weight status signal bit	Details please refer CH1 weight status signal bit.		
40013-40014	0012-0013	CH1 gross weight value(4 bytes signed integers)			
40015-40016	0014-0015	CH1 net weight value(4 bytes signed integers)			
40017-40018	0016-0017	CH1 tare value(4 bytes signed integers)			
40019-40020	0018-0019	CH2 gross weight value(4 bytes signed integers)			
40021-40022	0020-0021	CH2 net weight value(4 bytes signed integers)			
40023-40024	0022-0023	CH2 tare value(4 bytes signed integers)			
40025-40026	0024-0025	CH3 gross weight value(4 bytes signed integers)			
40027-40028	0026-	CH3 net weight value(4 bytes signed integers)			

	0027		
40029-40030	0028-0029	CH3 tare value(4 bytes signed integers)	
40031-40032	0030-0031	CH4 gross weight value(4 bytes signed integers)	
40033-40034	0032-0033	CH4 net weight value(4 bytes signed integers)	
40035-40036	0034-0035	CH4 tare value(4 bytes signed integers)	
40037-40038	0036-0037	CH1 display weight value (floating-point type)	
40039-40040	0038-0039	CH1 gross weight value(4-byte signed floating point type)	
40041-40042	0040-0041	CH1 net weight value(4-byte signed floating point type)	
40043-40044	0042-0043	CH1 tare value(4-byte signed floating point type)	
40045-40046	0044-0045	CH2 display weight value (floating-point type)	
40047-40048	0046-0047	CH2 gross weight value(4-byte signed floating point type)	
40049-40050	0048-0049	CH2 net weight value(4-byte signed floating point type)	
40051-40052	0050-0051	CH2 tare value(4-byte signed floating point type)	
40053-40054	0052-0053	CH3 display weight value (floating-point type)	
40055-40056	0054-0055	CH3 gross weight value(4-byte signed floating point type)	
40057-40058	0056-0057	CH3 net weight value(4-byte signed floating point type)	
40059-40060	0058-0059	CH3 tare value(4-byte signed floating point type)	
40061-40062	0060-0061	CH4 display weight value (floating-point type)	
40063-40064	0062-0063	CH4 gross weight value(4-byte signed floating point type)	
40065-40066	0064-0065	CH4 net weight value(4-byte signed floating point type)	
40067-40068	0066-0067	CH4 tare value(4-byte signed floating point type)	
40069-40070	0068-0069	CH1 after fliter AD internal code	bipolar-direct data; polar-no direct data
40071-40072	0070-0071	CH1 load cell voltage value	direct data,integer,Four decimal point
40073-40074	0072-0073	CH1 relative zero voltage value	direct data,integer, Four decimal point
40075-40076	0074-0075	CH2 after fliter AD internal code	bipolar -direct data;polar-no direct data
40077-40078	0076-0077	CH2 load cell voltage value	direct data, integer, Four decimal point
40079-40080	0078-0079	CH2 relative zero voltage value	direct data, integer,Four decimal point
40081-40082	0080-0081	CH3 after fliter AD internal code	bipolar -direct data; polar-no direct data

40083-40084	0082-0083	CH3 load cell voltage value	direct data, integer, Four decimal point	
40085-40086	0084-0085	CH3 relative zero voltage value	direct data, integer, Four decimal point	
40087-40088	0086-0087	CH4 after fliter AD internal code	bipolar -direct data, polar-no direct data	
40089-40090	0088-0089	CH4 load cell voltage value	direct data,integer,Four decimal point	
40091-40092	0090-0091	CH4 relative zero voltage value	direct data, integer, Four decimal point	
40093	0092	Reserve		
40094	0093	Input state area	bit	Specification
			D4-15	Reserve
			D3	Input 4 state
			D2	Input 3 state
			D1	Input 2 state
D0	Input 1 state			
40095	0094	Reserve		
40096	0095	Output state area	bit	Specification
			D8-15	Reserve
			D7	Output 8 state
			D6	Output 7 state
			D5	Output 6 state
			D4	Output 5 state
			D3	Output 4 state
			D2	Output 3 state
			D1	Output 2 state
D0	Output 1 state			
40097	0096	Flow state symbol bit	D10-15	Reserve
			D9	IO test state
			D8	Reserve
			D7	COMP 8 ON
			D6	COMP 7 ON
			D5	COMP 6 ON
			D4	COMP 5 ON
			D3	COMP 4 ON
			D2	COMP 3 ON
D1	COMP 2 ON			
D0	COMP 1 ON			
Parameter area address in combo mode				
40098	0097	Combination Channel Weight status flag bit ※ Indicates the weight status of the meter When it is the current status, the status bit displays "1" If the current weight is zero and stable, the address D0D1 status bit is "1"	D15	Load cell unplugged
			D14	Sensor power short (EXn+ and EXn- short)
			D13	Tank tilt
			D12	When there is a channel overflow or failure
			D11	Calculate the weight using theoretical values
			D10	ADC failure
			D9	Currently showing net weight
			D8	Millivolts stable
			D7	Sensor negative overflow
			D6	Sensor positive overflow
D5	Weight negative overflow			
D4	Weight positive overflow			
D3	Overflow state			

			D2	Show weight minus sign
			D1	Zero
			D0	Stable
40099-40100	0098-0099	Channel 1 pressure value	Signed number, integer, four decimal points	
40101-40102	0100-0101	Channel 2 pressure value		
40103-40104	0102-0103	Channel 3 pressure value		
40105-40106	0104-0105	Channel 4 pressure value		
40107-40108	0106-0107	Combined channel currently display weight value (4 bytes signed integer number)		
40109-40110	0108-0109	Combined channel gross weight (4-byte signed integer)		
40111-40112	0110-0111	Combined channel net weight value (4 bytes of signed integer)		
40113-40114	0112-0113	Combined channel tare value (4 bytes signed integer number)		
40115-40116	0114-0115	Combination channel display weight value (floating-point type)		
40117-40118	0116-0117	Combined channel gross weight value (4 bytes signed floating point number)		
40119-40120	0118-0119	Combined channel net weight value (4 bytes signed floating point number)		
40121-40122	0120-0121	Combined channel tare value (4 bytes signed floating point number)		
40123-40124	0122-0123	Code in AD after combination channel filtering	Bipolar - signed number; Unipolar - unsigned number	
40125-40126	0124-0125	Combined channel sensor voltage values	Signed number, integer, four decimal points	
40127-40128	0126-0127	Combined channel relative zero voltage value	Signed number, integer, four decimal points	
40129-40140	0128-0139	Reserve		
CH1				
40141	0140	Error code 1	D14-15	Reserve
			D13	When CAL unSTAB,waiting STAB
			D12	Remote calibration is performed when remote calibration is prohibited
			D11	Reserve
			D10	The previous weight point is not calibrated
			D9	Beyond minimum resolution
			D8	Weight input exceeds the maximum range
			D7	Weight input can't be 0
			D6	Weight CAL less than ZERO or the previous CP
			D5	Weight CAL load cell OFL
			D4	Weight CAL load cell-OFL
			D3	Weight CAL unSTAB
			D2	ZERO CAL load cell OFL
			D1	ZERO CAL load cell-OFL
D0	ZERO CAL unSTAB			
40142	0141	Error code 2	D15	When calibrate fail is 1
			D14	Reserve
			D13	Remote tare operation is not ON. Remote tare operation is allowed to be ON/OFF
			D12	Fobid Tare
			D11	Tare Err
			D10	OFL When Tare
			D9	-OFL When Tare
			D8	Non Stable When Tare
D7	NET state not allow ZERO			

			D6	Remote ZERO ON/OFF is not ON for remote ZERO
			D5	Loadcell Over when ZERO.
			D4	Loadcell Under when ZERO.
			D3	Non Stable when ZERO.
			D2	Over Full Scale when ZERO.
			D1	Power on ZERO unSTAB
			D0	Power on ZERO over range
40144-40155	0143-0154	Reserve		
CH2(Effective in indep mode)				
40156	0155	Error code1	Refer CH1 error code1	
40157	0156	Error code2	Refer CH1 error code2	
40158-40170	0157-0169	Reserve		
CH3(Effective in indep mode)				
40171	0170	Error code 1	Refer CH1 error code1	
40172	0171	Error code 2	Refer CH1 error code2	
40173-40185	0172-0184	Reserve		
CH4(Effective in indep mode)				
40186	0185	Error code 1	Refer CH1 error code1	
40187	0186	Error code 2	Refer CH1 error code2	
40188-40200	0187-0199	Reserve		
Basic Parameter area, can read and write				
CH1				
40201-40202	0200-0201	PWR-On Zero Range	Full scale 0%-101% , Initial value: 0 (OFF), 0 : OFF power on AUTO ZERO function 1-100 : power on according full scale 1-100% Range process ZERO 101 : Recover to last ZERO before power off	
40203-40204	0202-0203	Remote Zero	Range: 0 (OFF), 1 (ON); Initial value: 1 (ON)	
40205-40206	0204-0205	Zero range	Full scale 1%-99% , Initial value: 20%	
40207-40208	0206-0207	Remote Tare	Range: 0 (OFF), 1 (ON); Initial value: 1 (ON)	
40209-40210	0208-0209	Tare Record	Range: 0 (OFF), 1 (ON); Initial value: 0 (OFF)	
40211-40212	0210-0211	NetSign COR	Range: 0 (Disable), 1 (CorrectTare), 2 (BackToGross); Initial value: 0 (OFF)	
40213-40214	0212-0213	Preset Tare	Range: 0 ~ full scale Initial value: 0 , write in tare, read out current tare	
40215-40216	0214-0215	STAB Range	Range: 0-99d , Initial value: 1	
40217-40218	0216-0217	STAB Timer	Range: 1-5000 msec, Initial value: 1000	
40219-40220	0218-0219	TrZero Range	Range: 0-99d , Initial value: 0	
40221-40222	0220-0221	TrZero Timer	Range: 1-5000 msec, Initial value: 1000	
40223-40224	0222-	Digit-Filter	Range: 0-9 , Initial value: 4	

	0223		
40225-40226	0224-0225	Adv. Filter	Range: 0-99d ,Initial value: 0
40227-40228	0226-0227	AD Sample Rate	Range: 0-9 (0-50; 1-60; 2-100; 3-120; 4-200; 5-240; 6-400; 7-480; 8-800; 9-960) Initial value: 4-200
40229-40230	0228-0229	Signal Range	Range: 0-5 (0: 0-5mV; 1: 0-10mV; 2: 0-15mV; 3:-5-5mV; 4:-10-10mV; 5:-15-15mV) Initial value: 1 (0-10mV)
40231~40300	0230~0299	Reserve	
CH2			
40301-40330	0300-0329	Refer CH1 Parameter area	
40331~40400	0330~0399	Reserve	
CH3			
40401-40430	0400-0429	Refer CH1 Parameter area	
40431~40500	0430~0499	Reserve	
CH4			
40501-40530	0500-0529	Refer CH1 Parameter area	
40531~40600	0530~0599	Reserve	
CAL Parameter area,can read / write			
CH1			
40601-40602	0600-0601	Unit	Range: 0-3; 0-t, 1-kg, 2-g, 3-lb ; Initial value : 1
40603-40604	0602-0603	Decimal Point	Range: 0-4; 0-0, 1-0.0, 2-0.00, 3-0.000, 4-0.0000 ; Initial value : 0
40605-40606	0604-0605	Division	Range: 1, 2, 5, 10, 20, 50, 100, 200, 500
40607-40608	0606-0607	Full Scale	Range: 0-Division*1000000 ,Initial value: 10000
40609-40610	0608-0609	AUTO ZERO CAL	Only write in 1 ; write in 1 , ZERO calibrates the current state read : load cell current mV. Fixed 4byte decimal point
40611-40612	0610-0611	KEY ZERO CAL	Range: 0-150000 ; write in mV ; read current ZERO mV
40613-40614	0612-0613	CP1	write in weight value CALweight point 1
40615-40616	0614-0615	CP2	write in weight value CALweight point 2
40617-40618	0616-0617	CP3	write in weight value CALweight point 3
40619-40620	0618-0619	CP4	write in weight value CALweight point 4
40621-40622	0620-0621	CP5	write in weight value CALweight point 5
40623-40624	0622-0623	LC mV/V	Write the actual sensitivity of the load cell for the theoretical value calibration,Range: 0.0000-3.9999 , default: 2.0000
40625-40626	0624-0625	LC Capacity	Write the total range of the load cell for theoretical calibration, Range: 0-999999 , default: 10000

40627-40628	0626-0627	Use T-CAL	Write 1 to enable theoretical value calibration, write 0 to use calibration data
40629-40630	0628-0629	Correct Coef	Write the coefficient to modify the calibration, write the data integer type, the system default data write data with 5 decimal point. Range: 0.00001-9.99999 , default: 1.00000 .
40631-40632	0630-0631	Angle Correct Coef 1	Default: 100000, readable and writable
40633-40634	0632-0633	Angle Correct Coef 2	Default: 100000, readable and writable
40635-40636	0634-0635	Angle Correct Coef 3	Default: 100000, readable and writable
40637-40638	0636-0637	Angle Correct Coef 4	Default: 100000, readable and writable
40639-40640	0638-0639	Angle difference calculation	Range: 1; Can be calculated only when the number of samples is equal to the total number of combined channels, can only be written
40641-40642	0640-0641	Angle Correct Samp	Write 1 Angle difference sample once, only writable
40643-40644	0642-0643	Angle Correct Reset	Write 1 Angle difference coefficient is reset to the initial value of 100000, writable only
40645-40646	0644-0645	Angle difference sampling times	Read, write 0 to clear angle difference sampling times, read as the number of combined channels
40647-40648	0646-0647	Auto Capture	Input 1 for four channels of automatic zero calibration, zero calibration can not pass each way in the double-word address 650 prompts; Read as the current voltage value
40649-40650	0648-0649	One Key In mV	Range: 0-150000 ; Write millivolts, which are used in four channels at the same time; Read as zero voltage value
40651-40652	0650-0651	Zero calibration return value	Used to return the channel error number for one click automatic zero point calibration. If there is no error, return 1. The flag will be cleared after two seconds; If there is an error in channel one and channel three, return: 0X0F0F, and the flag will be cleared after two seconds
40653-40654	0652-0653	Tilt	Initial value: 0 (no alarm), range: 0-999999; When the weight gap between the two corners reaches this threshold, the feeding tilt alarm is carried out;
40655~40700	0654~0699	Reserve	
CH2(Effective in indep mode)			
40701-40730	0700-0729	Refer CH1 CAL parameter area	
40731~0800	0730~0799	Reserve	
CH3(Effective in indep mode)			
40801-40830	0800-0829	Refer CH1 CAL parameter area	
40831~40899	0830~0899	Reserve	
CH4(Effective in indep mode)			
40901-40930	0900-0929	Refer CH1 CAL parameter area	
40930~41000	0930~0999	Reserve	
Application area, read-write,otherwise read only			
41001-41002	1000-1001	Input1 function	Default: 0 ; Range: Optional in indep mode:

			0-21, 0-NONE, 1-CH1 ZERO, 2-CH2 ZERO, 3-CH3 ZERO, 4-CH4 ZERO, 5-CH1 CAL-ZERO, 6-CH2 CAL-ZERO, 7-CH3 CAL-ZERO, 8-CH4 CAL-ZERO, 9-CH1 TARE, 10-CH2 TARE, 11-CH3 TARE, 12-CH4 TARE, 13-CH1 CLEAR TARE, 14-CH2 CLEAR TARE, 15-CH3 CLEAR TARE, 16-CH4 CLEAR TARE, 17-CH1 GROSS/NET, 18-CH2 GROSS/NET, 19-CH3 GROSS/NET, 20-CH4 GROSS/NET, 21- COMP-ON Optional in combo mode: 0-NONE, 1-ZERO, 5-CAL-ZERO,9- TARE, 13-CLEAR TARE, 17- GROSS/NET, 21-COMP-ON
41003-41004	1002-1003	Input 1 delay	Range: 0-200ms , Initial value: 5ms ,
41005-41006	1004-1005	Input 2 function	Refer input1 function Specification
41007-41008	1006-1007	Input 2 delay	Refer input1 delay Specification
41009-41010	1008-1009	Input 3 function	Refer input1 function Specification
41011-41012	1010-1011	Input 3 delay	Refer input1 delay Specification
41013-41014	1012-1013	Input 4 function	Refer input1 function Specification
41015-41016	1014-1015	Input 4 delay	Refer input1 delay Specification
41017-41030	1016-1029	Reserve	
41031-41032	1030-1031	Output 1 function	Default: 0 ; Range 0-24 ,correspond: Optional in indep mode: 0 : NONE; 1-8 : COMP1-8; 9-12 :CH1 STAB,CH2 STAB,CH3 STAB,CH4 STAB; 13-16 :CH1 ZERO,CH2 ZERO,CH3 ZERO, CH4 ZERO; 17-20 :CH1 NET,CH2 NET,CH3 NET,CH4 NET; 21-24 :CH1 -SIGN, CH2 -SIGN, CH3 -SIGN, CH4 -SIGN Optional in combo mode: 0 - NONE、 1-8 : COMP1-8、 9 - STAB、 13 -ZERO、 17 - NET、 21 --SIGN
41033-41034	1032-1033	Output 2 function	Refer output 1 function
41035-41036	1034-1035	Output 3 function	
41037-41038	1036-1037	Output 4 function	
41039-41040	1038-1039	Output 5 function	
41041-41042	1040-1041	Output 6 function	

41043-41044	1042-1043	Output 7 function		
41045-41046	1044-1045	Output 8 function		
41047~41060	1046~1059	Reserve		
41061~41062	1060~1061	COMP1-COMP CH	Initial value: 0; Indep Mode with which CH process COMP: 0-CH1, 1-CH2, 2-CH3, 3-CH4	
41063-41064	1062-1063	COMP 1-COMP Mode	Initial value: 1-weight \leq ; Range: 0-6,0-OFF;1-W \leq CV1;2-W=CV1;3-W!=CV1;4-W \geq CV1;5-CV1 \leq W \leq CV2; 6-W <[CV1,CV2]>W	
41065-41066	1064-1065	COMP 1-COMP Value-1	Initial value: 0; COMP value1, direct data,Range-999999-999999	
41067-41068	1066-1067	COMP 1-COMP Value-2	Initial value: 0; COMP value2, direct data,Range-999999-999999, >COMP value 1;	
41069-41070	1068-1069	COMP1-ON COND.	Initial value: 0- output; Range: 0-2, : 0- Immediately, 1-Stable,2-Debounce;	
41071-41072	1070-1071	COMP1-TRUE JudgeT	Minimum judgment time for success, Initial value: 1000ms, Range: 0-5000ms;	
41073-41074	1072-1073	COMP1- OFF COND.	Initial value: 0- outputinvalid, Range: 0-2, : 0- Immediately,1-Stable,2-Debounce;	
41075-41076	1074-1075	COMP1-FALSE HoldT	Minimum decision time of failure, Initial value: 1000ms,Range0-5000ms;	
41077-41092	1076-1091	COMP 2 parameter	Refer COMP1 parameters Specification	
41093-41108	1092-1107	COMP 3 parameter		
41109-41124	1108-1123	COMP 4 parameter		
41125-41140	1124-1139	COMP 5 parameter		
41141-41156	1140-1155	COMP 6 parameter		
41157-41172	1156-1171	COMP 7 parameter		
41173-41188	1172-1187	COMP 8 parameter		
41189~41300	1188~1299	Reserve		
The following are combined mode parameters				
42001-42002	2000-2001	Current display resultant weight value (4 bytes signed integer)		
42003	2002	Resultant Status Flag ※ Indicates the weight status of the instrument When it is the current state, the status bit displays "1" If the current weight is zero and stable, the address D0D1 status bit is "1"	D15	Load cell unplugged
			D14	Sensor power short (EXn+ and EXn- short)
			D13	Tank tilt
			D12	When there is a channel overflow or failure
			D11	Calculate the weight using theoretical values
			D10	ADC failure
			D9	Currently showing net weight
			D8	Millivolts are stable
			D7	Sensor negative overflow
			D6	Sensor positive overflow
			D5	Weight negative overflow
			D4	Weight positive overflow
			D3	Overflow state
D2	Show weight minus sign			
D1	Zero			

			D0	stabilize
42004	2003	Channel 1 Weight status flag bit ※ Indicates the weight status of the meter When it is the current status, the status bit displays "1" If the current weight is zero and stable, the address D0D1 status bit is "1"	D15	Reserved
			D14	Sensor power short (EXn+ and EXn- short)
			D13	Load cell unplugged
			D12	Reserve
			D11	Calculate the weight using theoretical values
			D10	ADC failure
			D9	Currently showing net weight
			D8	Millivolts stable
			D7	Sensor negative overflow
			D6	Sensor positive overflow
			D5	Weight negative overflow
			D4	Weight positive overflow
			D3	Overflow state
			D2	Show weight minus sign
D1	Reserve			
D0	Stable			
42005	2004	CH2 Weight status flag bit	Refer to Channel 1 Weight Status Flag bit instructions	
42006	2005	CH3 Weight status flag bit		
42007	2006	CH4 Weight Status flag bit		
42008	2007	Reserve		
42009-42010	2008-2009	CH1 Current display weight value (4 bytes signed integer number)		
42011-42012	2010-2011	CH2 Current display weight value (4 bytes signed integer number)		
42013-42014	2012-2013	CH3 Current display weight value (4 bytes signed integer number)		
42015-42016	2014-2015	CH4 Current display weight value (4 bytes signed integer number)		
42017-42018	2016-2017	CH1 Current display pressure value (4 bytes signed integer number)		
42019-42020	2018-2019	CH2 Current display pressure value (4 bytes signed integer)		
42021-42022	2020-2021	CH3 Current display pressure value (4 bytes signed integer)		
42023-42024	2022-2023	CH4 Current display pressure value (4-byte signed integer)		
42025-42026	2024-2025	CH1 Load cell voltage value	CH1 Load cell voltage value	
42027-42028	2026-2027	CH2 Load cell voltage values	CH2 Load cell voltage values	
42029-42030	2028-2029	CH3 Load cell voltage values	CH3 Load cell voltage values	
42031-42032	2030-2031	CH4 Load cell voltage values	CH4 Load cell voltage values	
42033-42034	2032-2033	CH1 Calibration zero voltage value	Range: Follow the sensor signal range; Write millivolts; Read as current zero voltage Write zero voltage, read as current zero voltage Signed number, integer, four decimal points	
42035-42036	2034-2035	CH2 Calibration zero voltage value	Range: Follow the sensor signal range; Write millivolts; Read as current zero voltage Write zero voltage, read as current zero voltage Signed number, integer, four decimal points	
42037-42038	2036-2037	CH3 Calibration zero voltage value	Range: Follow the sensor signal range; Write millivolts; Read as current zero voltage Write zero voltage, read as current zero voltage Signed number, integer, four decimal points	
42039-42040	2038-2039	CH4 Calibration zero voltage value	Range: Follow the sensor signal range; Write millivolts; Read as current zero voltage Write zero voltage, read as current zero voltage Signed number, integer, four decimal points	

42041-42042	2040-2041	CH1 sensor sensitivity value	Write using the actual sensitivity of the sensor for theoretical value calibration, range: 00000-39999 , default: 30000 Unsigned number, integer, four decimal points
42043-42044	2042-2043	CH2 sensor sensitivity value	Write using the actual sensitivity of the sensor for theoretical calibration, range: 00000-39999 , default: 30000 Unsigned number, integer, four decimal points
42045-42046	2044-2045	CH3 Sensor sensitivity value	Write using the actual sensitivity of the sensor for theoretical value calibration, range: 00000-39999 , default: 30000 Unsigned number, integer, four decimal points
42047-42048	2046-2047	CH4 sensor sensitivity value	Write using the actual sensitivity of the sensor for theoretical value calibration, range: 00000-39999 , default: 30000 Unsigned number, integer, four decimal points
42049-42050	2048-2049	CH1 Sensor range	Write sensor range for theoretical value calibration, range: 0-999999 , default: 10000 , unsigned integer
42051-42052	2050-2051	CH2 Sensor range	Write sensor range for theoretical value calibration, range: 0-999999 , default: 10000 , unsigned integer
42053-42054	2052-2053	CH3 Sensor range	Write sensor range for theoretical value calibration, range: 0-999999 , default: 10000 , unsigned integer
42055-42056	2054-2055	CH4 Sensor range	Write sensor range for theoretical value calibration, range: 0-999999 , default: 10000, unsigned integer
42057-42058	2056-2057	Angle Correct Coef 1	Default: 100000; read-write
42059-42060	2058-2059	Angle Correct Coef 2	Default value: 100000 read-write
42061-42062	2060-2061	Angle Correct Coef 3	Default: 100000; read-write
42063-42064	2062-2063	Angle Correct Coef 4	Default: 100000; read-write
42065-42066	2064-2065	Angle difference calculation	After sampling the Angle difference, write 1 for the Angle difference calculation; Only when the number of samples is equal to the total number of combined channels can be calculated, only write; Read as 0
42067-42068	2066-2067	Angle Correct Samp	Press the material to one of the sensors, write 1 Angle difference sampling once after stability, and then change the material to another sensor, write 1 again after stability And so on, finish sampling the selected sensor
42069-42070	2068-2069	Angle Correct Reset	Write 1 The Angle difference coefficient is reset to the initial value of 100000, which can only be written and read as 0
42071-42072	2070-2071	Angle difference sampling times	Readable, write 0 Clear the number of angular difference samples, read as the number of combined channels
42073-42074	2072-2073	Auto Capture	Enter 1 for 4-channel automatic zero calibration
42075-42076	2074-2075	One Key In mV	Unit: 0-150000; Write millivolts, which use the selected channel at the same time
42077-42078	2076-2077	Zero calibration return value	The channel error number used to return the one-key zero calibration 1 is returned without

			errors, or 0X0F0F if there are errors in channels 1 and 3 The flag bit clears after two seconds
42079-42080	2078-2079	Tilt	When the weight difference between the two corners reaches this threshold, the feed tilt alarm is carried out, ranging from 0-999999, default: 0
Communication parameter setting area (read-write, otherwise read only)			
RS485 Parameters			
48001	8000	COM ID	Initial value: 1; Range: 01-99
48002	8001	Baudrate	Initial value: 3-38400, Range: 0-5: 0-4800, 1-9600, 2-19200, 3-38400, 4-57600, 5-115200
48003	8002	Protocol	Initial value: 0-Modbus RTU, Range: 0-Modbus RTU, 1-GM-Cont
48004	8003	Data Format	Initial value: 1 (8E1); Range: 0-8N1, 1-8E1, 2-8O1, 3-7E1, 4-7O1 Note: Modbus only support 8 bit.
48005	8004	Dword Format	Initial value: 0 (AB-CD) Range: 0-AB-CD, 1-CD-AB
48006	8005	Send Gap	Time interval between frames when sending continuously Initial value: 20ms, Range 0-5000ms
48007~48020	8006~8019	Reserve	
RS232 Parameters			
48021	8020	COM ID	Refer RS485 parameters
48022	8021	Baudrate	
48023	8022	Protocol	
48024	8023	Data Format	
48025	8024	Dword Format	
48026	8025	Send Gap	
48027~48100	8026~8039	Reserve	
CAN OPEN Parameter			
48041	8040	COM ID	Initial value: 1; range: 1-127
48042	8041	Baudrate	Range: 0-50K, 1-100K, 2-125K, 3-250K, 4-500K
48043	8042	Report frame format	Initial value: 1; range: 0-standard frame(11bit), 1-extension frame (29bit) (only used for actively report frame)
48044	8043	Report frame content	Initial value: 0; range: 0-weight, 1-volt
48045	8044	Report gap	Initial value: 20ms; range: 0-5000ms
48046~48100	8045~8099	Reserve	
Communication Parameters			
48101-48104	8100-8103	IP1-IP4	Initial value: 192.168.000.001, order is from part 1 to part 4 IP; Range: 000.000.000.000-255.255.255.255
48105-48108	8104-8107	subnet mask 1- 4	Initial value: 255.255.255.001, order is from part 1 to part 4 IP; Range: 000.000.000.000-255.255.255.255
48109-48112	8108-8111	Gateway 1- 4	Initial value: 192.168.000.001, order is from part 1 to part 4 IP; Range: 000.000.000.000-255.255.255.255
48113	8112	Connect 1 Port	Initial value: 502, Range: 1-65535, net COMM port No. set, 0 means OFF should connect
48114	8113	Connect 1 Protocol	Standard net can set, Range include: protocols are: 0-Modbus/TCP, 1-GM-Cont/TCP,

			default 0-Modbus/TCP
48115	8114	Connect 1 Dword Format	Standard net can set, Hi_Lo byte mode, Modbus/RTU. 0-AB-CD, 1-CD-AB , default: 0-AB-CD
48116	8115	Connect 1 Send Gap	When Protoco is 1-GM-Cont , The PARA is used to set the interval for continuous sending. Range: 0-5000ms , default value: 20ms
48117-48120	8116-8119	Connect 2	Except for port number 0, see connection port 1 (register address 8112-8115)
48121-48124	8120-8123	Connect 3	
48125-48128	8124-8127	Connect 4	
48129-48130	8128-8131	Connect 5	
48131-48136	8132-8135	Connect 6	
48137	8136	PN/EIP/ CC-Link IE Field Basic write switch	Initial value: 0: OFF , Range: 0: OFF.; 1: ON
48138	8137	PN/EIP/ CC-Link IE Field Basic data type	Initial value: 1-Float weight. , range: 0-Int weight, 1-float weight. 2-float Voltage . 3-AD Code
48139	8138	EtherCAT Site alias	Initial value: 0 ; range: 0-65535
48138-48300	8139-8299	Reserve	
I/O test Parameters (can read/write, otherwise read only)			
48301	8300	test mode	Range: 0-1, 0: exist I/O test mode, 1: enter serial port IO test mode ,after test finish must turn OFF,transmitter can enter normal state.
48302	8301	input1 test	read out 0 no input, read out 1 have input. write in any value is invalid,Only in IO test mode is valid
48303	8302	input2 test	
48304	8303	input3 test	
48305	8304	input4 test	
48306-48350	8305-8349	Reserve	
48351	8350	output1 test	Range: 0-1 , write in: 0: OFF output, 1: ON output (only under IO test mode is valid), read out current IO state, 0: OFF,1: ON
48352	8351	output2 test	
48353	8352	output3 test	
48354	8353	output4 test	
48355	8354	output5 test	
48356	8355	output6 test	
48357	8356	output7 test	
48358	8357	output8 test	
48359-48400	8358-8399	Reserve	
Analog CAL area address(can read/write, otherwise read only)			
CH 1			
48401	8400	Analog output mode	Default: 2 ; Range: 0: 0-5V, 1: 0-10V, 2: 4-20mA, 3: 0-20mA, 4: 0-24mA, 5:-5-5V, 6:-10-10V.
48402-48405	8401-8404	Reserve	
48406	8405	Analog Link Data	Range: 0-2, 0: current weight, 1: NW, 2: GW
48407	8406	Enter analog CAL mode	Range: 0-2 ,write in: 0 ,exist remote analog CALstate; 1: Remote mA CAL; 2: Remote mV CAL after remote Edit is ON can be used
48408	8407	mA Point1 Digital Code	Range: 0-65535 ,write in: Transmitter according write in code
48409	8408	mA Point1 mA value	

48410	8409	mA Point2 Digital Code	output mA. Only under mA CAL mode can be used Range: 0-24000 ,write in mA value, complete the corresponding point mA CAL. Only use under mA CAL mode.
48411	8410	mA Point2 mA value	
48412	8411	mA Point3 Digital Code	
48413	8412	mA Point3 mA value	
48414	8413	mA Point4 Digital Code	
48415	8414	mA Point4mA value	
48416	8415	mA Point5 Digital Code	
48417	8416	mA Point5 mA value	
48418	8417	mV Point 1 Digital Code	
48419	8418	mV Point 1 mV value	
48420	8419	mV Point Digital Code	Range: 0-65535 ,write in: Transmitter according write in code output mV. Only valid mV CAL mode. Range: 0-10000 , write in measure mV value, complete corresponding mV CAL. Only valid in mV CAL mode.
48421	8420	mV Point 2 mV value	
48422	8421	mV Point 3 Digital Code	
48423	8422	mV Point 3 mV value	
48424	8423	mV Point 4 Digital Code	
48425	8424	mV Point 4 mV value	
48426	8425	mV Point 5 Digital Code	
48427	8426	mV Point 5 mV value	
48428	8427	current output analog	
48429~48500	8428~8499	Reserved	
CH2(Effective in indep mode)			
48501	8500	Analog output mode	Default: 2 ; Range: 0: 0-5V, 1: 0-10V, 2: 4-20mA, 3: 0-20mA, 4: 0-24mA, 5: -5-5V, 6: -10-10V.
48502~48505	8501~8504	Reserved	
48506-48528	8505-8527	Refer CH1 analog CAL parameter	
48529~48600	8528~8599	Reserved	
CH3(Effective in indep mode)			
48601	8600	Analog output mode	D Default: 2 ; Range: 0: 0-5V, 1: 0-10V, 2: 4-20mA, 3: 0-20mA, 4: 0-24mA, 5: -5-5V, 6: -10-10V.
48602~48505	8601~8604	Reserved	
48606-48628	8605-8627	Refer CH1 analog CAL parameter	
48629~48700	8628~8699	Reserved	
CH4(Effective in indep mode)			
48701	8700	Analog output mode	Default: 2 ; Range: 0: 0-5V, 1: 0-10V, 2: 4-20mA, 3: 0-20mA, 4: 0-24mA, 5: -5-5V, 6: -10-10V.
48702~48705	8701~8704	Reserved	
48706-48728	8705-8727	Refer CH1 analog CAL parameter	
48729~48800	8728~8799	Reserved	
Function operate address zero (correspond coil function), can read/write			
CH1			
48801	8800	ZERO	Write 1 to execute the operation read out: 0
48802	8801	TARE	
48803	8802	Clear Tare	
48804	8803	GROSS/NET	
48805	8804	CAL ZERO	
48806~48810	8805~8809	Reserve	
CH2(Effective in indep mode)			
48811-48815	8810-8814	Refer CH1 function operate parameters	
48816~48820	8815~8819	Reserve	
CH3(Effective in indep mode)			
48821-48825	8820-8824	Refer CH1 function operate parameters	

48826~48830	8825~8829	Reserve	
CH4(Effective in indep mode)			
48931~48835	8830~8834	Refer CH1 function operate parameters	
48836~48900	8835~8899	Reserve	
System parameters reset			
CH1			
48901	8900	Basic reset	Write 1 to execute the corresponding reset operation read out : 0
48902	8901	CAL reset	
48903	8902	Analog reset	
48904~48910	8903~8909	Reserve	
CH2(Effective in indep mode)			
48911~48913	8910~8912	Refer CH1 reset parameters	
48914~48920	8913~8919	Reserve	
CH3(Effective in indep mode)			
48821~48923	8920~8922	Refer CH1 reset parameters	
48924~48930	8923~8929	Reserve	
CH4(Effective in indep mode)			
48931~48933	8930~8932	Refer CH1 reset parameters	
48834~48940	8933~8939	Reserve	
48941	8940	Application reset	Write 1 to execute the corresponding reset operation read out : 0
48942	8941	Communication reset	
48943	8942	All Parameters reset	
48944~48980	8943~8979	Reserve	
Power on Logo edit zero, can read/write			
48981~48988	8980~8987	Edit power on logo charactor 1-8 (8 charactor)	Correspond to power on logo 1-8 charactor, need write in Ascii code, Range: 0-9,A-Z,a-z , blank space, ' ; default: WELCOME blank space
49310	09309	Mode	Default: 0; Range: 0 : Indep Mode, 1: Combo Mode, 2: Viewing Four Channel Weight Values in Combination Mode
49311	09310	Channel combination	Default: 0x00FF ; Range: 0x00FF-0xFFFF (0x000F : Channel one, 0x00F0 : Channel two, 0x0F00 : Channel three, 0xF000 : Channel four, for example, 0x0FFF indicates the combination of channel one + channel two + channel three)
48989~49000	8988~8999	Reserve	
Transmitter system info area, read only			
410001	10000	Soft Version (Hi)	
410002	10001	Soft Version (Lo)	If read out 10000 , it is 01.00.00 version
410003	10002	Compile Date (YY)	
410004	10003	Compile Date (MM/DD)	
410005	10004	language	0: Chinese ; 1: English
410006~410018	10005~10017	transmitter serial No. 13 charactors	
410019~410030	10018~10029	Transmitter 138 NO. 12 charactors, indicate transmitter hardware version	
410031~410100	10030~10099	Reserve	
410101~410106	10100~10105	Transmitter MAC address	
410107~410207	101006~10206	Reserve	
Coil address			

Function Operation			
CH1			
0x0001	0000	ZERO	The contents are readable and writable coils Writing ON is valid Read as 0
0x0002	0001	TARE	
0x0003	0002	Clear Tare	
0x0004	0003	GROSS/NET	
0x0005	0004	CAL ZERO	
0x0006~0x0010	0005~0009	Reserve	
CH2(Effective in indep mode)			
0x0011~0x0015	0010~0014	Refer CH1 function operate parameters	
0x0016~0x0020	0015~0019	Reserve	
CH3(Effective in indep mode)			
0x0021~0x0025	0020~0024	Refer CH1 function operate parameters	
0x0026~0x0030	0025~0029	Reserve	
CH4(Effective in indep mode)			
0x0031~0x0035	0030~0034	Refer CH1 function operate parameters	
0x0036~0x0300	0035~0299	Reserve	
Reset operate			
CH1			
0x0301	0300	Basic reset	Only write in this area Write ON to execute reset Read 0
0x0302	0301	CAL reset	
0x0303	0302	Analog reset	
0x0304~0x0310	0303~0309	Reserve	
CH 2(Effective in indep mode)			
0x0311~0x0313	0310~0312	Refer CH1 reset Parameters operate	
0x0314~0x0020	0313~0329	Reserve	
CH 3(Effective in indep mode)			
0x0321~0x0323	0320~0322	Refer CH1 reset Parameters operate	
0x0324~0x0330	0323~0329	Reserve	
CH 4(Effective in indep mode)			
0x0331~0x0333	0330~0332	Refer CH1 reset Parameters operate	
0x0334~0x0340	0333~0339	Reserve	
0x0341	0340	Application reset	Write only Write ON reset read: 0 (Note: reset all parameters, except power on Logo)
0x0342	0341	Communication reset	
0x0343	0342	All Parameters reset	
0x0344~0x0400	0343~399	Reserve	
IO state, read only area			
0x0401	0400	Input 1 state	read only area Readout returns an input port state 0:invalid; 1:valid
0x0402	0401	Input 2 state	
0x0403	0402	Input 3 state	
0x0404	0403	Input 4 state	
0x0405~0x0450	0404~0449	Reserve	
0x0451	0450	Output 1 state	read only area read out back to each output state 0: invalid; 1 valid
0x0452	0451	Output 2 state	
0x0453	0452	Output 3 state	
0x0454	0453	Output 4 state	
0x0455	0454	Output 5 state	
0x0456	0455	Output 6 state	
0x0457	0456	Output 7 state	
0x0458	0457	Output 8 state	
0x0459~0x0500	0458~0499	Reserve	
0x0501	0500	basic Parameter Remote Edit	read only area,whether to allow Remote Edit,1 ON,0 OFF
0x0502	0501	CAL Parameter Remote Edit	

0x0503	0502	Application Remote Edit
0x0504	0503	analog Parameter Remote Edit
0x0505	0504	Communication Parameter remote edit
0x0506	0505	Maintenance Remote Edit
0x0507	0506	PWD Protect

11.2 GM-Cont(Continuous Sending Protocol)

GMT-X4 when COM Protocol is “**GM-Cont**”, send data according below format.

STX	Scale No.	CH1			Each occupies 8 bits, with reference to channel 1 data format, valid in independent mode. Read all zeros when in combination mode	CRC	CR	LF
		state1	state2	weight value				
02H	2 bits	1 bit	1 bit	6 bits	2bits	0D	0A	

Among:

Scale No.——2 bits, display current scale No., Range: 01~99;

state1——1 bit, format as below:

bit7	bit6	bit5	bit4		bit3	bit2		bit1	bit0
Fix 0	g	0	0	0	0	0	0	0	0
	Kg	0	1	0.0	0	0	0	0	1
	t	1	0	0.00	0	0	1	0	0
	Lb	1	1	0.000	0	1	0	1	1
				0.0000	1	0	0	0	0
Weight Unit					Decimal				

state2——1 bit, format as below:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Reserve	Reserve	Reserve	GROSS/NET	+/-	ZERO	Overflow	STAB
Fix 0	Fix 1	Fix 0	0-GROSS 1-NET	0+ 1--	0-None ZERO 1-ZERO	0-normal 1- overflow	0-UnStable 1- STAB

CH2, CH3, CH4——Effective in indep mode,Data Format and CH1 are same, details please refer to CH1;

weight value——6 bits unsigned data; Returns "space space OFL space" when weight is positive (negative) overflow.;

CRC——2 bits, Cal and All the values in front of the check bits are added up and converted to decimal data, and then the last two bits are converted to ASCII (tens before, ones after) For example

For example below frame data:

(02 30 31 00 41 20 20 20 37 30 30 09 51 20 20 20 32 30 30 12 4B 20 20 33 30 30 30 1B 4C 20 20 4F 46 4C 20) 31 39 0D 0A

The sum of **02~20: 5EF (Hex)**, converted to decimal as **1519**. It can be calculated that the check codes of this data frame are 31 and 39.

Example:

The current transmitter automatically returns data: **02 30 31 00 41 20 20 20 37 30 30 09 51 20 20 20 32 30 30 12 4B 20 20 33 30 30 30 1B 4C 20 20 4F 46 4C 20 31 39 0D 0A**

The current transmitter state is stable: **CH1 in gross weight**,STAB state, the weight value is positive, and the current weight value is **700g**,

CH2 is NET,STAB state, weight value is +,currentweight value is **20.0kg**, **CH3** is gross weight, STAB state, weight value is -,currentweight value is-**30.00t**, **CH4** is-OFL state, display **OFL**.

11.3 CAN OPEN Protocol

- 1) Support **100K, 125K, 250K, 500K, 1000K** bus speed, can set in the "CAN OPEN" parameter of communication parameters.
- 2) There are two different frame formats, mainly the length of the identifier field is different, with 11 bit identifier (ID) is the standard frame, and with 29 bit identifier is the extended frame. The frame format is detailed in the following table:

11.3.1 Standard frame active report data format

11bits frame ID	bit10	address	Local device address(1~127)
	bit9		
	bit8		
	bit7		
	bit6		
	bit5		
	bit4		
	bit3		
bit2	reserved (fix 0)		
bit1			
bit0			
Data format			
Word 3	Byte7	weight data	32 bit integer signed number , data Hi-Lo, OFL,-OFL display weight data is 9999999, -9999999
Word 2	Byte6		
Word 1	Byte3	channel status	Below status valid is 1 D7: ADC Fault D6: Load cell short circuit D5: load cell OFL D4: weight OFL D3: effective theoretical value D2: display NW D1: stable D0: ZERO
		channel No.	current data frame channel No.(0-3)
	Word 0	Byte1	reserved
	Byte0		

11.3.2 Standard frame read data format

11bits frame ID	bit10	address	Target device address
	bit9		
	bit8		

	bit7		
	bit6		
	bit5		
	bit4		
	bit3	Frame function	Fix 01: read parameter
	bit2		
	bit1	frame direction	Fix 0: from host to slave machine
bit0	Data type	0: word(2byte); 1: Dword(4byte)	
Data format			
Word 3	Byte7	0	
	Byte6		
Word 2	Byte5	0	
	Byte4		
Word 1	Byte3	0	
	Byte2		
Word 0	Byte1	read address	
	Byte0		

Read back to result data format

11bits frame ID	bit10	address	local device address (1~127)
	bit9		
	bit8		
	bit7		
	bit6		
	bit5		
	bit4		
	bit3	Frame function	Fix 01: read parameter
	bit2		
bit1	frame direction	Fix 0: from host to slave machine	
bit0	data type	0: word (2byte); 1: Dword(4byte)	
Back to data format			
Word 3	Byte7	Back to data	read Dword Lo word CD part or read word
	Byte6		
Word 2	Byte5		Read Dword Hi word AB part
	Byte4		
Word 1	Byte3	Operation result: 0 OK, 1 address error, 2 data unconscionable	
	Byte2		
Word 0	Byte1	read address	
	Byte0		

11.3.3 Standard frame write in data format

11bits frame ID	bit10	address	target device address
	bit9		
	bit8		
	bit7		
	bit6		
	bit5		
	bit4		
	bit3	Frame function	Fix 00: parameter write in
	bit2		
bit1	frame direction	Fix 0: from Host to Slave machine	
bit0	data type	0: Word(2byte); 1: Dword(4byte)	

Data			
Word 3	Byte7	write in parameter contents	write in Dword Lo-word CD or word content
	Byte6		
Word 2	Byte5		write in Dword Hi word AB
	Byte4		
Word 1	Byte3		0
	Byte2		
Word 0	Byte1		write in address
	Byte0		

Write in back to result data format

11bits frame ID	bit10	address	local device address (1~127)
	bit9		
	bit8		
	bit7		
	bit6		
	bit5		
	bit4		
	bit3	frame function	Fix 00: parameter write in
	bit2		
	bit1	frame direction	Fix 1: From slave machine to Host
bit0	data type	0: word (2byte); 1: Dword(4byte)	
Back to data format			
Word 3	Byte7	write in Dword CD or word content	
	Byte6		
Word 2	Byte5		write in Dword AB
	Byte4		
Word 1	Byte3		Operative result: 0 success, 1 address error , 2 data unreasonable
	Byte2		
Word 0	Byte1		Write in address
	Byte0		

11.3.4 The extended frame actively reports the data format

29 bits frame ID	bit28	address	local device address (1~127)
	bit27		
	bit26		
	bit25		
	bit24		
	bit23		
	bit22		
	bit21	frame function	10: active report weight; 11 active report volt
	bit20		
	bit19	frame direction	Fix 1: From slave machine to Host
	bit18	report content	00: report data (CH 1, 2) 01: report data (CH 3, 4)
	bit17		
	bit16	reserved	Fix 0
	bit15	The data state of CH (1,3) in indep mode (combo mode is the	below state valid is 1 bit15: ADC error bit14: load cell short circuit bit13: load cell OFL
bit14			
bit13			
bit12			
bit11			

	bit10	combined data state)	bit12: weight OFL bit11: theory valid bit10: display NW bit9: stable bit8: zero	
	bit9			
	bit8			
	bit7	CH(2,4) data state(Effective in indep mode)		below state valid is 1 bit7: ADC error bit6: load cell short circuit bit5: load cell OFL bit4: weight OFL bit3: theory valid bit2: display NW bit1: stable bit0: zero
	bit6			
	bit5			
	bit4			
	bit3			
	bit2			
bit1				
bit0				
Data				
Word 0	Byte7	The data state of CH (1,3) in indep mode (combo mode is the combined data state)	The returned data is a hexadecimal number, a 32-bit integer signed number, data Hi-Lo. When OFL and -OFL, the weight data is 9999999 and -9999999. If it is a voltage value, the voltage value has 3 decimal places by default	
	Byte6			
Word 1	Byte5			
	Byte4			
Word 2	Byte3	CH (2,4) weight data(Effective in indep mode)		
	Byte2			
Word 3	Byte1			
	Byte0			

11.4 PROFINET

GMT-X4 display has two PROFINET-IO bus connect port: LAN1 and LAN2, can connect to the PROFINET bus as a Profinet-IO slave station..

Transmitter IP address please check at **【Communication】** -- **【Profinet】**; MAC address please check at **【Maintenance】** -- **【System Info】** .

11.4.1 IO status in combo mode(Cycle parameter)

GMT-X4 provides 36 byte IO, the master station can read and control the status of the weighing display.

PN Offsets	EIP Offsets	Parameter	Data type	Specification
Combined channel weight and status parameters (read register, I address)				
0	0	Display Current Weight/ Voltage value	DWord	Currently displayed weight integer/weight float type /voltage value(depending on the PN parameter data type), default display float weight.
4	2	Weight state marker bit	Word	D15: communication heartbeat (After the connection is established, the value of the PN's communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz)
				D14: write state (write data return state 0:no error 1: register address illegal 2: parameter error)
				D12-D13: reserved
				D11: Use theory value calculate weight, (Use theory value calculate weight prompt user)

				D10: ADC fault (ADC initialization failure or sampling interruption longer than expected) D9: Net weight of the current display, (distinguish which weight is currently displayed) D8: mV STAB (mark of million volt stability in calibration) D7: load cell-OFL, lower load cell mV allow Range D6: load cell OFL, Over load cellmV allow Range D5: weight -OFL, weight < “-(Full Scale +9d)” D4: weight OFL, weight > “ Full Scale +9d” D3: OFL state (weight or load cell abnormal) D2: display weight -, (display weight is -) D1: ZERO (weight is in 0+/- 1/4d Range) D0: STAB
6	3	Error code 1	Word	D15: calibrate state (0:normal; 1: calibrate fail) D14: calibrating unstable, waiting till stable D13: The remote tare operation permit switch is not enabled when the tare is operated remotely D12: NETstate does not allow TARE D11: When tare, the weight is negative D10: TARE, loadcell OFL D09: TARE, loadcell -OFL D08: , TARE,no STAB D07: NET state not allow ZERO D06: The remote reset switch is not turned on during remote reset D05: ZERO, load cell OFL D04: ZERO, load cell-OFL D03: ZERO,no STAB D02: ZERO over Range D01: power on ZERO no STAB D00: power on ZERO over Range
CH1				
8	4	Channel 1 Weight/floating-point weight/voltage value	DWord	Channel 1 Weight integer/weight floating-point/voltage value currently displayed (depending on parameter data type on meter), floating-point weight is displayed by default.
12	6	Status flag bit	Word	D12 to D15: Reserved D11: Calculate weight using theoretical value, (prompt user when calculating weight using theoretical value) D10: ADC failure, (ADC initialization failure or sampling interruption longer than expected)

				D9: Currently displayed net weight, (distinguish which weight is currently displayed) D8: millivolt stable, (when calibration millivolt stable sign) D7: Sensor negative overflow, lower than the sensor voltage allowed range D6: positive sensor overflow, beyond the allowable range of sensor voltage D5: Weight negative overflow, weight less than "-(Max range +9d)" D4: Weight positive overflow, weight greater than "Max range +9d" D3: Overflow status, (abnormal weight or sensor) D2: Show weight minus sign, (show weight is negative) D1: Reserved D0: stable
CH2				
14	7	Display Current Weight/ Voltage	DWord	Currently displayed weight integer/weight float type /voltage value, default display weight float type.
18	9	Status flag bit	Word	Refer CH1 state byte (Note: differ with CH1, D14-D15 are reserved)
CH3				
20	10	Display Current Weight/ Voltage	DWord	Currently displayed weight integer/weight float type /voltage value(depending on the PN parameter data type), default display float weight.
24	12	Status flag bit	Word	Refer CH1 status flag bit.
26	13	Display Current Weight/ Voltage	DWord	Currently displayed weight integer/weight float type /voltage value(depending on the PN parameter data type), default display float weight.
30	15	State flag bit	Word	Refer CH1 status flag bit.
32	16	read out value	DWord	The master station requests the data returned by the meter, the value obtained according to the "request read address".
function Operate and Parameters modify (write register, Q address)				
0	0	Function Operate	Byte	D5-D7 Reserve D4: CAL ZERO D3: GROSS/NET D2: Clear Tare D1: TARE D0: ZERO
4	2	The request to write value of the modbus address	DWord	Write value address. (Note: that a change in address does not write)This PARA modify connect port module support MODBUS address range limit 200-1187.
8	4	Input value	DWord	Input value to the request to write value of the modbus address (Note: only when value change will write in transmitter. This parameter modifies the interface module support MODBUS address range is limited to 200-1187 .)

12	6	The read request of the modbus address	DWord	Read address (Note: Can't read DWord address,when write an odd address) This parameter modifies the interface module support MODBUS address range is limited to 200-1187.
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11.4.2 IO status in indep mode(Cycle parameter)

Offsets	Parameter	Data type	Specification
Weight and state parameters (read register,I address)			
CHI			
0	Display Current Weight/ Voltage value	DWord	Currently displayed weight integer/weight float type /voltage value(depending on the PN parameter data type), default display float weight.
4	Weight state marker bit	Word	D15: communication heartbeat (After the connection is established, the value of the PN's communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz) D14: write state (write data return state 0:no error 1: register address illegal 2: parameter error) D12-D13: reserved D11: Use theory value calculate weight, (Use theory value calculate weight prompt user) D10: ADC fault (ADC initialization failure or sampling interruption longer than expected) D9: Net weight of the current display, (distinguish which weight is currently displayed) D8: mV STAB (mark of million volt stability in calibration) D7: load cell-OFL, lower load cell mV allow Range D6: load cell OFL, Over load cellmV allow Range D5: weight -OFL, weight < “-(Full Scale +9d)” D4: weight OFL, weight > “ Full Scale +9d” D3: OFL state (weight or load cell abnormal) D2: display weight -, (display weight is -) D1: ZERO (weight is in 0+/- 1/4d Range) D0: STAB
6	Error code 1	Word	D15: calibrate state (0:normal; 1: calibrate fail) D14: calibrating unstable, waiting till stable D13: The remote tare operation permit switch is not enabled when the tare is operated remotely D12: NETstate does not allow TARE D11: When tare, the weight is negative D10: TARE, loadcell OFL D09: TARE, loadcell -OFL D08: TARE,no STAB D07: NET state not allow ZERO D06: The remote reset switch is not turned on during remote reset D05: ZERO, load cell OFL D04: ZERO, load cell-OFL D03: ZERO,no STAB D02: ZERO over Range D01: power on ZERO no STAB D00: power on ZERO over Range

CH2			
8	Display Current Weight/ Voltage	DWord	Currently displayed weight integer/weight float type /voltage value, default display weight float type.
12	State flag bit	Word	Refer CH1 state byte (Note: differ with CH1, D14-D15 are reserved)
14	Error code 2	Word	Refer CH1 error code 1
CH3			
16	Display Current Weight/ Voltage	DWord	Currently displayed weight integer/weight float type /voltage value(depending on the PN parameter data type), default display float weight.
20	State flag bit	Word	Refer CH1 state byte (Note: differ with CH1, D14-D15 are reserved)
22	Error code 3	Word	Refer CH1 error code 1
CH4			
24	Display Current Weight/ Voltage	DWord	Currently displayed weight integer/weight float type /voltage value(depending on the PN parameter data type), default display float weight.
28	State flag bit	Word	Refer CH1 state byte (Note: differ with CH1, D14-D15 are reserved)
30	Error code4	Word	Refer CH1 error code 1
32	read out value	DWord	The master station requests the data returned by the meter, the value obtained according to the "request read address".
function Operate and Parameters modify (write register, Q address)			
0	CH1 function Operate	Byte	D5-D7 Reserve
			D4: CAL ZERO
			D3: GROSS/NET
			D2: Clear Tare
			D1: TARE
			D0: ZERO
1	CH2 function Operate	Byte	Refer CH1 function Operate
2	CH3 function Operate	Byte	Refer CH1 function Operate
3	CH4 function Operate	Byte	Refer CH1 function Operate
4	The request to write value of the modbus address	DWord	Write value address. (Note: that a change in address does not write)This PARA modify connect port module support MODBUS address range limit 200-1187.
8	Input value	DWord	Input value to the request to write value of the modbus address (Note: only when value change will write in transmitter) This parameter modifies the interface module support MODBUS address range is limited to 200-1187 .
12	The read request of the modbus address	DWord	Read address (Note: Can't read DWord address,when write an odd address) This parameter modification interface module supports readable MODBUS address ranges.

11.4.3 Acyclic parameter list

Module	PARA items	Initial value	Specification
CH1~CH4 CAL and	PWR-On Zero	0	Range: 0~101 (full scale percentage)
	TrZero Range	0	0-99d
	STAB Range	1	0-99d

Basic parameter (Note: In combo mode, only the data from channel 1 is used, and the remaining channels return 0 and cannot be written)	ZERO Range	20%	1%-99%
	Digit-Filter	4	0-9
	Adv. Filter	0	0-99
	Unit	kg	g,kg,t,lb
	Decimal Point	0	Range: 0; 0.0; 0.00; 0.000; 0.0000
	Division	d=1	transmitter value division value Range: 1;2; 5;10;20; 50;100;200;500
	Full Scale	10000	transmitter full scale, normally take load cell full scale. Range: Division*1000000 settable. When over fill scale (“ data over range”) prompt info, avoid weighing over pressure damage load cell.

11.4.4 Device description file GSD

The device description file and connection method of GMT-X4 can be downloaded from the website of Shenzhen General Measure Technology Co., Ltd. (www.gmweighing.com).

11.5 EtherCAT communication

The GMT-X4 display has two bus connection ports: LAN1 and LAN2, with LAN2 serving as the entry when EtherCAT is connected. Any computer with a network interface card and any embedded device with Ethernet control can serve as a master station for EtherCAT, such as devices such as Huichuan PLC. It is also possible to connect to the transmitter through Twincat software on a PC computer, in any case within the same LAN as the transmitter. The following parameter table can be used after the connection is successful.

11.5.1 Simplified parameter address

EtherCAT cycle parameter list

Data type	Parameter	Description
Parameters write address, write only		
UDint	CH1~CH4 function operate (each CH takes 8 bits)	D5-D7: reserved D4: CAL Zero D3: GS/NT D2: Clear Tare D1: TARE D0: ZERO
UDINT	The request to write value of the modbus address	Write value address. (Note that a change in address does not write).This parameter modify connect port module support MODBUS address range limit 200-1187.
UDINT	Input value	Input value to the request to write value of the modbus address (Note: only when value change will write in transmitter) .This parameter modifies the interface module support MODBUS address range is limited to 200-1187.
UDINT	The read request of the modbus address	Read address(Note:Can't read DWord address,when write an odd address) This parameter modifies the interface module support MODBUS address range is limited to 200-1187.
Parameters read address, read only		
REAL	CH1 weight	current display weight, floating point type
UINT	CH1 weight status bit	D15: communication heartbeat (After the connection is established, the value of the PN's communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz)

		<p>D14: write state (write data return state 0:no error 1: parameters error)</p> <p>D12-D13: reserved</p> <p>D11: Calculate the weight using theoretical values, (Prompt the user when calculating weight using theoretical values)</p> <p>D10: ADC fault, (ADC initialization failed or sampling interrupted longer than expected)</p> <p>D9: current display NW, (Distinguish which weight is currently displayed)</p> <p>D8: mV STAB, (Millivolt stability marker during calibration)</p> <p>D7: load cell -OFL, lower load cell volt allow range</p> <p>D6: load cell OFL, over load cell volt allow range</p> <p>D5: Weight -OFL, weight lower “-(full range+9d)”</p> <p>D4: Weight OFL, weight over “full range+9d”</p> <p>D3: OFL state, (weight or load cell fault)</p> <p>D2: display weight-, (display weight-)</p> <p>D1: ZERO, (weight within 0+/-quarter d range)</p> <p>D0: STAB</p>
UINT	CH1 error code	<p>D15: calibrate state (0: normal; 1: calibrate fail)</p> <p>D14: When calibrate is unstable, waiting stable</p> <p>D13: When remote operate TARE, remote TARE operate allow ON/OFF is off</p> <p>D12: When in NW state, do not allow TARE</p> <p>D11: Weight is negative when TARE</p> <p>D10: Load cell OFL when TARE</p> <p>D9: Load cell -OFL when TARE</p> <p>D8: Unstable when TARE</p> <p>D7: NW stable do not allow ZERO</p> <p>D6: Remote ZERO remote ZERO ON/OFF is off</p> <p>D5: Load cell OFL when ZERO</p> <p>D4: Load cell -OFL when ZERO</p> <p>D3: Non Stable when ZERO</p> <p>D2: ZERO over range</p> <p>D1: Non Stable when PWR-On Zero</p> <p>D0: Over Zero Range</p>
REAL	CH 2 weight	Refer above CH1 parameter read address description in indep mode.
UINT	CH 2 weight status bit	
UINT	CH 2 error code	
REAL	CH 3 weight	Refer above CH1 parameter read address description in indep mode.
UINT	CH 3 weight status bit	
UINT	CH 3 error code	
REAL	CH 4 weight	Refer above CH1 parameter read address description in indep mode.
UINT	CH 4 weight status bit	
UINT	CH 4 error code	
DINT	read out value	The master station requests the data returned by the meter, the value obtained according to the "request read address".

EtherCAT Non Acyclic Parameter List

Please refer to section [11.4.3 Acyclic parameter list](#) in Profinet Communication for specific content.

11.5.2 Device description file ESI

GMT-X4 device description file and connection method can be downloaded at Shenzhen General Measure Technology Company, Ltd.'s website (www.gmweighing.com)

11.6 EthernetIP communication

GMT-X4 display has two EthernetIP bus connect ports: LAN1 and LAN2, can connect to the EthernetIP bus as a EthernetIP -IO slave station..

Transmitter IP address please check at **【Communication】** -- **【EthernetIP】**; MAC address please check at **【Maintenance】** -- **【System Info】** .

11.6.1 IO module address in combo mode(cyclic Parameters)

GMT-X4 provides **36 bytes INPUT** and **16 bytes OUTPUT**. The **master** station can read and control the status of the weighing display through these **I/O**. The specific IO module address can refer to the IO address in combo mode [11.4.1 IO status in combo mode\(Cycle parameter\)](#).

11.6.2 IO module address in indep mode (cyclic Parameters)

Offsets	Parameters	Data type	Parameter Description
Read register of PLC (I address)			
CHI			
0	Current Display weight/ Volt	DINT (4Byte)	Currently displayed weight integer/weight floating-point (depending on the PN parameter data type). Default: Display floating-point weight(Need to use REAL type to read on the computer).
2	Weight state marker bit	Word (2Byte)	D15: communication heartbeat (After the connection is established, the value of the PN's communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz) D14: write state (write data return state 0:no error; 1: error) D12-D13: reserved D11: Use theory value calculate weight,(Use theory value calculate weight prompt user) D10: ADC fault ,(ADC initialization failure or sampling interruption longer than expected) D9: Net weight of the current display (distinguish which weight is currently displayed) D8: mV STAB(mark of million volt stability in calibration) D7: Loadcell -OFL, lower loadcell mV allow Range D6: Loadcell OFL, Over loa cell mV allow Range D5: Weight -OFL, weight <“- (Full Scale +9d)” D4: Weight OFL, weight >“ Full Scale +9d” D3: OFL state, (weight or load cell abnormal) D2: Display weight - (display weight is negative) D1: ZERO (weight is in 0~+/- 1/4d Range) D0: STAB
3	Error code 1	Word (2Byte)	D15: Calibrate state (0:normal; 1: calibrate fail) D14: Calibrating unstable, waiting till stable D13: The remote tare operation permit switch is not enabled when the tare is operated remotely D12: NETstate does not allow TARE D11: When tare, the weight is negative

			D10: TARE, loadcell OFL
			D09: TARE, loadcell -OFL
			D08: , TARE ,no STAB
			D07: NET state not allow ZERO
			D06: The remote zero switch is not turned on during ZERO.
			D05: ZERO, loadcell OFL
			D04: ZERO, loadcell -OFL
			D03: ZERO,no STAB
			D02: ZERO over Range
			D01: PWR-on.ZERO no STAB
			D00: PWR-on ZERO over Range
CH2			
4	Current Display weight/ Volt	Dint (4Byte)	Currently displayed weight integer/weight floating-point (depending on the PN parameter data type). Default: Display floating-point weight(Need to use REAL type to read on the computer)
6	State flag bit	Word (2Byte)	D12-D15: reserved D11: Use theory value calculate weight,(Use theory value calculate weight prompt user) D10: ADC fault,(ADC initialization failure or sampling interruption longer than expected) D9: Net weight of the current display (distinguish which weight is currently displayed) D8 : mV STAB(mark of million volt stability in calibration) D7: Loadcell -OFL, lower loadcell mV allow Range D6: Loadcell OFL, Over loa cell mV allow Range D5: Weight -OFL, weight <“- (Full Scale + 9d)” D4: Weight OFL, weight >“ Full Scale + 9d ” D3: OFL state, (weight or load cell abnormal) D2: Display weight - (display weight is negative) D1: ZERO (weight is in 0~+/- 1/4d Range) D0: STAB
7	error code 2	Word (2Byte)	Refer CH1 error code 1
CH3			
8	Current Display weight/ Volt	Dint (4Byte)	Currently displayed weight integer/weight floating-point (depending on the PN parameter data type). Default: Display floating-point weight(Need to use REAL type to read on the computer)
10	State flag bit	Word (2Byte)	Refer CH2 state flag bit.
11	Error code 3	Word (4Byte)	Refer CH1error code 1
CH4			
12	Current Display weight/ Volt	Dint (4Byte)	Currently displayed weight integer/weight floating-point (depending on the PN parameter data type). Default: Display floating-point weight(Need to use REAL type to read on the computer)
14	State flag bit	Word (2Byte)	Refer CH2 state flag bit.
15	Error code4	Word (2Byte)	Refer CH1error code 1

16	Read out value	DInt (4Byte)	The main station requests the data returned by the instrument and obtains the value based on the "requested read address"
Write register of PLC (Q address)			
0	CH1~CH4 function Operate	DInt	CH1: D29~D31: Reserved D28: CAL ZERO D27: GROSS/NET D26: Clear tare D25: TARE D24: ZERO CH2: D21~D23: Reserved D20: CAL ZERO D19: GROSS/NET D18: Clear tare D17: TARE D16: ZERO CH 3: D13~D15: Reserved D12: CAL ZERO D11: GROSS/NET D10: Clear tare D9: TARE D8: ZERO CH4: D5~D7: Reserved D4: CAL ZERO D3: GROSS/NET D2: Clear tare D1: TARE D0: ZERO
2	The request to write value of the modbus address	DInt	Write value address. (Note that a change in address does not write)This PARA modify connect port module support MODBUS address range limit 200-1187. 0:No write data.
4	Input value	DInt	Input value to the request to write value of the modbus address (Note: only when value change will write in transmitter)
6	The read request of the modbus address	DInt	Read address (Note: Can't read DWord address,when write an odd address) This parameter modification interface module supports readable MODBUS address ranges.

11.6.2 Acyclic parameter list

Refer to Profinet communication section [11.4.3 Acyclic parameter list](#).

11.6.3 Device description file EDS

GMT-X4 device description file and connection method can download at Shenzhen General Measure Technology Company, Ltd.'s website (www.gmweighing.com)

11.7 CCLink IE Field Basic communication

When selecting CCLink IE Field Basic for extended communication, it can communicate

with the PLC. The IP of the instrument and the PC and PLC must be in the same LAN. The IP address of the instrument can be set in [Communication] Parameters - [CCLink IEF Basic]; The MAC address can be viewed in [Maintenance] Parameters - [System Info]. After establishing a successful engineering connection, parameters can be configured according to the following parameter addresses.

This instrument occupies one link station, and the quantity and address that each link station can accommodate are as follows:

- 1) Use cyclic transmission to transmit bit data to various stations. In the master station, the input data is RX: 64 bit (slave ->master station); The output data is RY: 64 bit (master ->slave).
- 2) Use circular transmission to transmit word data to various stations. In the master station, input the data area RWr: 32 words (slave station ->master station) (in words); Output data area RWw: 32 words (master station ->slave station).

11.7.1 Cycle parameter address

Offsets	Parameter	Data type	Specification
Weight and state parameters (read register,I address)			
CH1			
RWr0-RWr1	Display Current Weight/ Voltage value/AD Code	DWord	Currently displayed weight integer/weight float type /voltage value/AD Code (depending on the CCLINK IE Field Basic parameter data type), default display float weight.
RWr2	Weight state marker bit	Word	D15: communication heartbeat (After the connection is established, the value of the PN's communication heartbeat is converted between 0 and 1 at a frequency of 1 Hz)
			D14: write state (write data return state 0:no error 1: register address illegal 2: parameter error)
			D12-D13: reserved
			D11: Use theory value calculate weight, (Use theory value calculate weight prompt user)
			D10: ADC fault (ADC initialization failure or sampling interruption longer than expected)
			D9: Net weight of the current display, (distinguish which weight is currently displayed)
			D8: mV STAB (mark of million volt stability in calibration)
			D7: load cell-OFL, lower load cell mV allow Range
			D6: load cell OFL, Over load cellmV allow Range
			D5: weight -OFL, weight < “-(Full Scale +9d)”
			D4: weight OFL, weight > “ Full Scale +9d”
			D3: OFL state (weight or load cell abnormal)
			D2: display weight -, (display weight is -)
D1: ZERO (weight is in 0+/- 1/4d Range)			
D0: STAB			
RWr3	Error code 1	Word	D15: Calibrate state (0:normal; 1: calibrate fail)
			D14: Calibrating unstable, waiting till stable
			D13: The remote tare operation permit switch is not enabled when the tare is operated remotely
			D12: NET state does not allow TARE
			D11: When tare, the weight is negative
			D10: TARE, loadcell OFL
			D09: TARE, loadcell -OFL
			D08: TARE,no STAB
D07: NET state not allow ZERO			
D06: The remote reset switch is not turned on during remote reset			

			D05: ZERO, load cell OFL
			D04: ZERO, load cell-OFL
			D03: ZERO,no STAB
			D02: ZERO over Range
			D01: Power on ZERO no STAB
			D00: Power on ZERO over Range
CH2(Effective in indep mode)			
RWr4- RWr5	Display Current Weight/ Votlag/AD Code	DWord	Currently displayed weight integer/weight float type /voltage value/AD Code (depending on the CCLINK IE Field Basic parameter data type),default display weight float type.
RWr6	State flag bit	Word	Refer CH1 state byte (Note: differ with CH1, D14-D15 are reserved)
RWr7	Error code 2	Word	Refer CH1 error code 1
CH3(Effective in indep mode)			
RWr8- RWr9	Display Current Weight/ Votlag/AD Code	DWord	Currently displayed weight integer/weight float type /voltage value/AD Code (depending on the CCLINK IE Field Basic parameter data type),default display weight float type.
RWr10	State byte	Word	Refer CH1 state byte (Note: differ with CH1, D14-D15 are reserved)
RWr11	Error code 3	Word	Refer CH1 error code 1
CH4(Effective in indep mode)			
RWr12- RWr13	Display Current Weight/ Votlag/AD Code	DWord	Currently displayed weight integer/weight float type /voltage value/AD Code (depending on the CCLINK IE Field Basic parameter data type),default display weight float type.
RWr14	State flag bit	Word	Refer CH1 state byte (Note: differ with CH1, D12-D15 are reserved)
RWr15	Error code4	Word	Refer CH1 error code 1
RWr16- RWr17	read out value	DWord	The master station requests the data returned by the meter, the value obtained according to the "request read address".
Function Operate Parameters (write register, Q address)			
RY00	CH1 function Operate	Byte	CH1 ZERO
RY01			CH1 TARE
RY02			CH1 Clear Tare
RY03			CH1 CAL ZERO
RY04			CH1 GROSS/NET
RY05			Reserve
RY06			Reserve
RY07			Reserve
RY08~ RY0F	CH2 function Operate	Byte	Refer CH1 function Operate
RY10~ RY1F	CH3 function Operate	Byte	Refer CH1 function Operate
RY18~ RY1F	CH4 function Operate	Byte	Refer CH1 function Operate
RWw0- RWw1	The request to write value of the modbus address	DWord	Write value address. (Note: that a change in address does not write)This PARA modify connect port module support MODBUS address range limit 200-1187.
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 the modbus address	DWord	Read address (Note: Can't read DWord address,when write an odd address) This parameter modification interface module supports readable MODBUS address ranges.

11.7.2 Acyclic parameter list

Refer to Profinet communication section [11.4.3 Acyclic parameter list](#).

11.7.3 Device description file CSPP

GMT-X4 device description file and connection method can download at Shenzhen General Measure Technology Company, Ltd.'s website (www.gmweighing.com)

12. DIMENSION

