GENERAL MEASURE

杰 • 曼 • 科 • 技

GMT-X1

User Manual

110611020007

V01.10.32

 **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） Safety Certificate：CE

Content

1. General Description

1.1 Functions and Characteristics

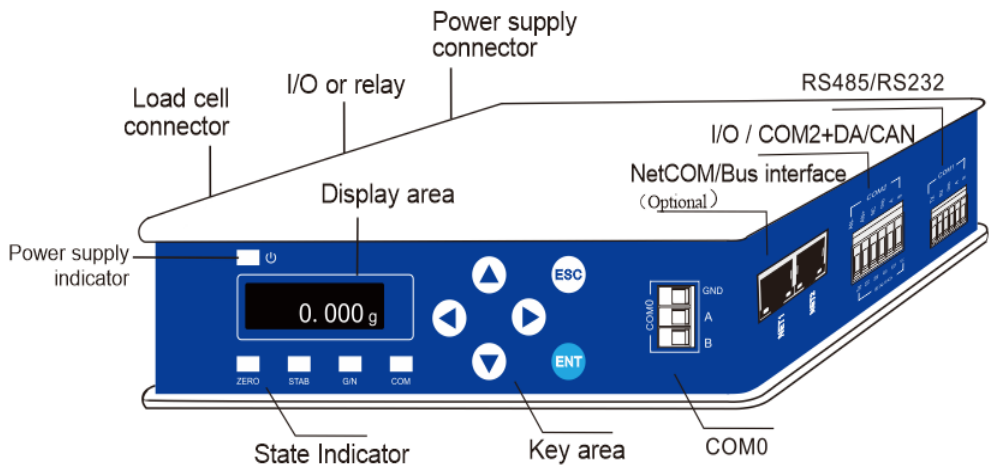
Shell type	DIN Rail mounted, stainless steel housing	
load cell interface	1 way 6 wire analog load cell weighing platform interface, connection only 8 350 Ω load cells at most	
Display	128*32 0.91”white light OLED	
Language	Support Chinese,English	
Preset point function	8 - way comparator 11 comparison options	
Interface	1 way RS232/RS485 interface	
	1 way RS485 interface	
	Support 5.0 blue tooth module connet with smartphone App	
	Option 1	**3** in **5** out Transistor I/O interface
		3 in **4** out Relay output interface
	Option 2	**1** way **485+1 DA** output
		2 in **4** out Transistor I/O interface
		1 CAN communication interface
	Option 3	Double network port, built-in switch
		Single network port
		Profinet Bus interface
		Ethernet/IP Bus interface
		Profibus-DP Bus interface
		CCLink-IE Bus interface
		EtherCAT Bus interface

1.2 Technical Specifications

Power supply	**24VDC（18~30VDC）**
Dimension	**131*111. 4*32（mm）**
GW	**500g**
Certified working environment	**-10～40℃; 90%R.H** without dew
Working environment	**-20～60℃; 90%R.H** without dew
Storage environment	**-40～60℃; 90%R.H** without dew
Power	**5W**
Load cell excitation voltage	**5V 200mA（MAX）**
Load cell requirements	A simulated Load cell, connection only 8 350 Ω load cells, most support 1 mv/V, 2 mv/V, 3 mv/V sensitivity
Input sensitivity	**0. 1uV/d**
Non-linerarity	**0.01% F.S**
A/D conversion speed	**50; 60; 100; 120; 200; 240; 400; 480; 800; 960（SPS）**
Display Precision	**1/999999**
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
- **ZERO**：Light on when material weight is 0±1/4d.
- **STAB**：Light on when material weight is within stable range.
- **G/N**：Gross weight/Net weight, indicator flashes when the current display is new weight.
- **COM**：Light on when in communication status.
  Item 576x (Maintenance) defines which port status the COM indicator light indicates.Definition range: COM 0, COM 1, COM 2, NetCom,CAN

2.2 Key sepcification

GMT-X1 has **6** button functions， short press and long press have differences, button diagram is shown as below:

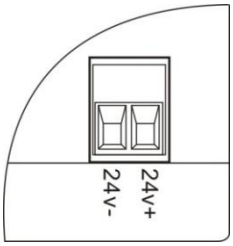
Key	Interface	Short press	Long press
▲	Main interfce	**Switch display: Weight/Flowrate/Analog**	**Switch display：Weight/Loadcell Input**
	Menu interface	Previous SubParameter	/
	Data input	Data or letter +1	Switch Capital
	Option select page	Previous SubParameter	/
▼	Main interfce	**Tare**(Supports continuous tar-ing)	**Gross/Net weight display switch**
	Menu interface	Next SubParameter	/
	Data input	Data or letter -1	Clear data to 0 when inputting pure numbers
	Menu interface	Next SubParameter	/
	Main interfce	**Check Tare value**	**Shortcut to preset tare value**
	Menu interface	Next SubParameter	/

	Data input	Input position move to left	/
	Option select	/	/
	Main interfce	**Print**	**Print empty line:** Keep moving if it works until it is released
	Menu interface	Right Parameter Menu	/
	Data input	Input position move to right	/
	Option select	/	/
	Main interfce	**Menu page**	Quickly view software version and compilation date
	Menu page	Comfirm Selection	/
	Data input	Comfirm Selection	/
	Option select	Comfirm Selection	/
	Main interfce	**Zero(If Gross)/Clear Tare(If Net)**	**Fast Calibrate Zero (If Gross)**
	Menu page	Return to previous level	/
	Data input	Exit Page	/
	Option select	Back to Main interfce	/

3 Installation and Wiring

3.1 Connection of Power Supply

GMT-X1 weighing transmitter connects with DC**24V** power supply as follows.



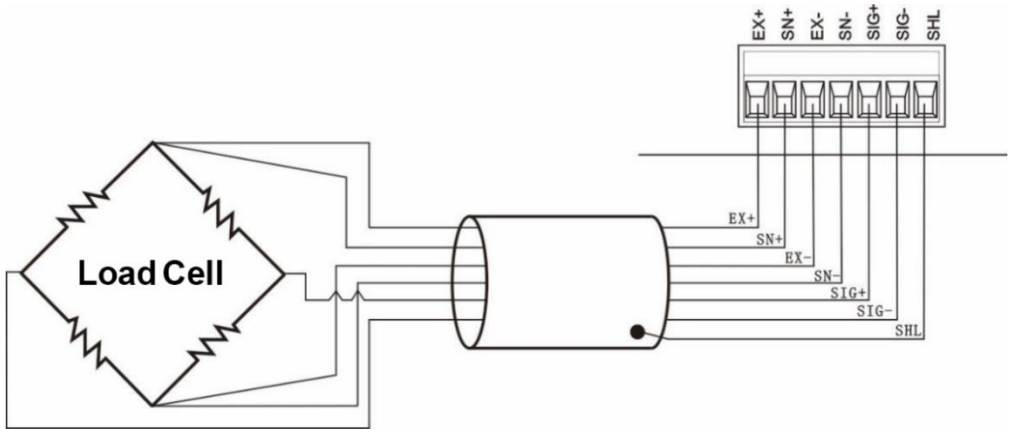
NOTE： The transmitter uses DC24V power supply, use AC220V power will cause permanent damage to the transmitter.

3.2 Connection of Load Cell

GMT-X1 weighing transmitter connects with bridge type resistance strain gauge load cells.

PORTS	EX+	SN+	EX-	SN-	SIG+	SIG-	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 EX+ and SN+ ports, EX- and SN- 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.

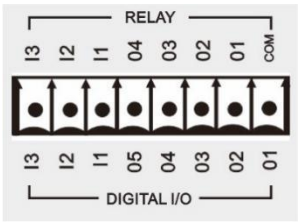
3.3 Connection of I/O Terminal

GMT-X1 weighing transmitter I/O module is an optional interface function. Two interfaces are optional.

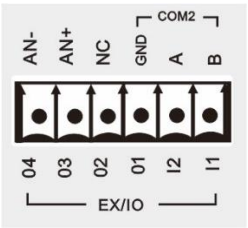
Option: **1**：**3** IN **5** OUT（or can choose **3** IN **4** OUT relay output connector）

Option **2**：**2** IN **4** OUT

Standard IO is transistor collector open output mode with each drive current of 200mA



Option **1**



Option **2**

The factory default low level of input and output interfaces is valid.The user can set this in **[Input Cfg] [Output Cfg]** parameter

The input port unified level mode, that is, the IN1 mode is set as high level, then IN2 and IN3 are set as high level simultaneously and are effective.The output port can be set to high and low level mode separately

IO wiring instructions:

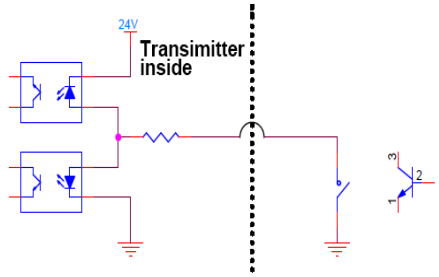
Connect the instrument to external devices through wiring, control the instrument through external inputs to perform functions such as zeroing, cleaning tare, printing, etc., and display the current status of the instrument through output, such as zero point, stability, or a comparator output.

Taking the optional 3-in-5-out transistor expansion interface as an example:

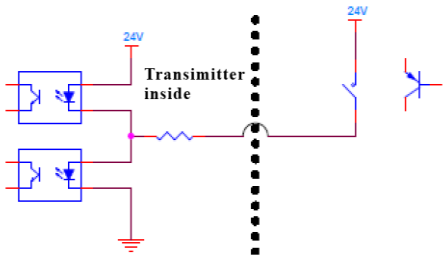
Input interface connection: Connect the terminals of the external control device to the input terminals of the controller one-on-one, and test the connection through 521x input testing. Connection successful, enter the 32xx input port configuration, set the functions, level modes, and debounce time parameters of each input port. For example, if input port 1 is set to **ZERO,** press the corresponding external device connection port button, and the instrument will perform a zero operation (within the zero range). The other input port functions are operated in the same way.

Output interface connection: Connect the external indicator device terminals to the controller's output terminals one-to-one, and test the connection through 522x output testing. Connection successful, enter the 33xx output port configuration, set the functions and level mode parameters of each output port. For example, if output port 1 is set to stable, the instrument weight will be in a stable state, and the corresponding indicator light of the external output port will light up. At this time, the instrument stable output is effective. The same operation applies to other output port functions.

Transmitter input interface schematic diagram

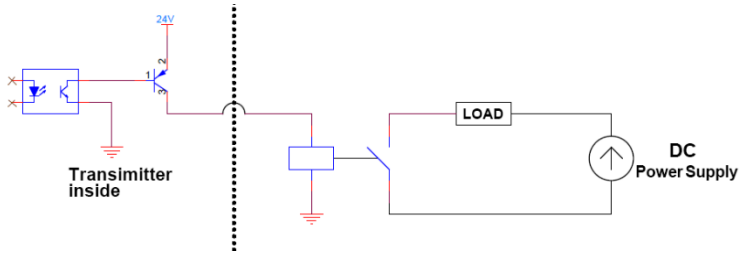


Low level mode

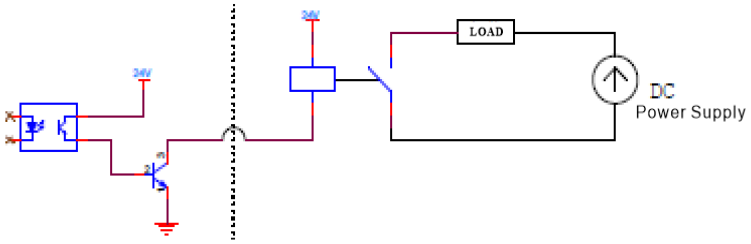


High level mode

Schematic diagram of transmitter output interface



High level mode



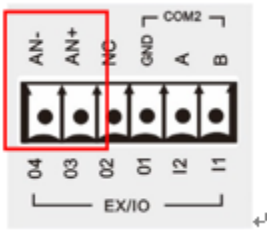
Lower level mode

The default definition is as follows：

Output		Input	
OUT1	**NONE**	**IN1**	**NONE**
OUT2	**NONE**	**IN2**	**NONE**
OUT3	**NONE**	**IN3**	**NONE**
OUT4	**NONE**		
OUT5	**NONE**		

3.4 Connection of Analog

GMT-X1 have analog output function, 1 channel analog output function is optional.Interface AN+ (positive), AN- (negative).



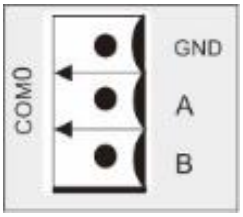
Analog output can be divided into two types: voltage output and current output.User can select the corresponding mode in the output mode

Please refer to analog mode and calibration **8.3** analog parameters.

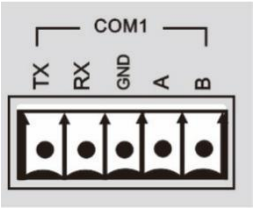
3.5 Serial Port Output

GMT-X1 instrument configuration includes 2 serial ports: 1 RS485 and 1 RS232/485 (software parameter selection). Optional interface 2 can be equipped with 1 RS485 (order declaration).

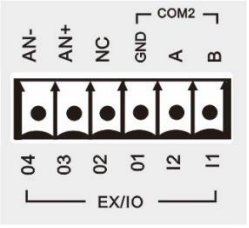
COM0：Standard serial port



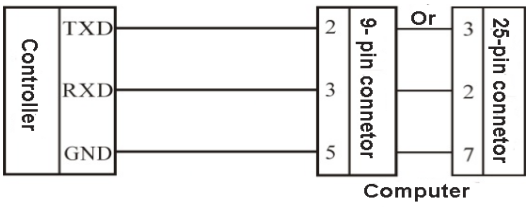
COM1：Standard serial port，**RS232/RS485**（Parameter 427x selection）



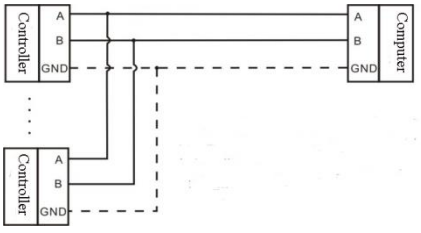
COM2：Serial port optional



RS232connection 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

3.5.1 Serial port fault troubleshooting

If serial port can't communicate, please check：

○ Check the wiring according to the above wiring method to ensure that the wiring 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.

3.6 NetCom Connection

GMT-X1 support NetCOM communication and **PN/EIP/CCLink-IE/Ether CAT/Profibus-DP** bus communication mode（optional fuction, make statement when order）.Support **TCP** protocol（**Modbus/TCP**，**Cont-A/TCP**, **Cont-B/TCP**, **r-Cont/TCP**, **rE-Cont/TCP**, **YH/TCP**）and **EIP/PN/CCLink-IE/ Ether CAT/DP** bus protocol.

1)Dual network port optional, NetCOM has built-in switch, easy to cascade.

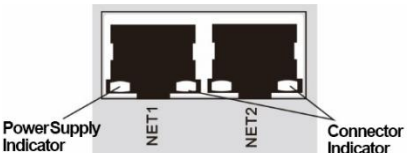
2)Single network port option, support TCP protocol. The NET2 port is valid.

3) When communicating with PN/EIP/CC Link IE Filed Basic, any network port of the instrument can be connected for communication.

4）When communicating with Ethernet CAT, Net2 serves as the entry point. When connecting to multiple devices, the devices must be connected in series to distinguish the order of entry and exit. For specific parameter settings, please refer to section 10.12 Ether-CAT Communication.

3.6.1 NetCom fault troubleshooting

If NetCom can't communicate, please check:



○ Check NetCom indicator light

Hardware connect normal, power supply indicator is on.

Cable connect normal,the connector indicator is flash.

○ Check communication protocol is consistent with com-puter and PLC.

○ Make sure **GMT-X1** can be **PING** by the network. If not, check the hardware interface section.

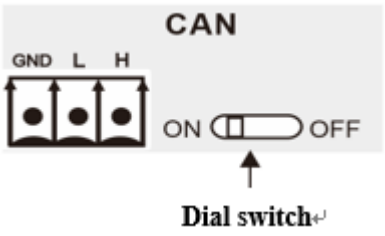
○ Confirm if there are IP conflicts.

○ Restart

3.7 CAN Connection

Support **1** way **CAN** communicate interface, can communicate with computer. **GMT-X1** module can connect to bus network as a slave station module, baud rate support **100K,125K**,**250K,500K,1000K**.

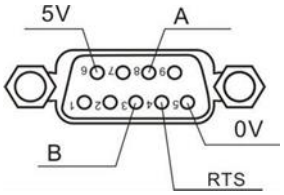
Connect to the CAN bus,connect methord refer to below charts,The dip switch is used to set whether to install an adaptive resistor. For non communication terminal modules, please make sure to turn this switch to the "OFF" end. Refer to Chapter 8.6 for parameter settings and Chapter 10.9 for communication protocol content.



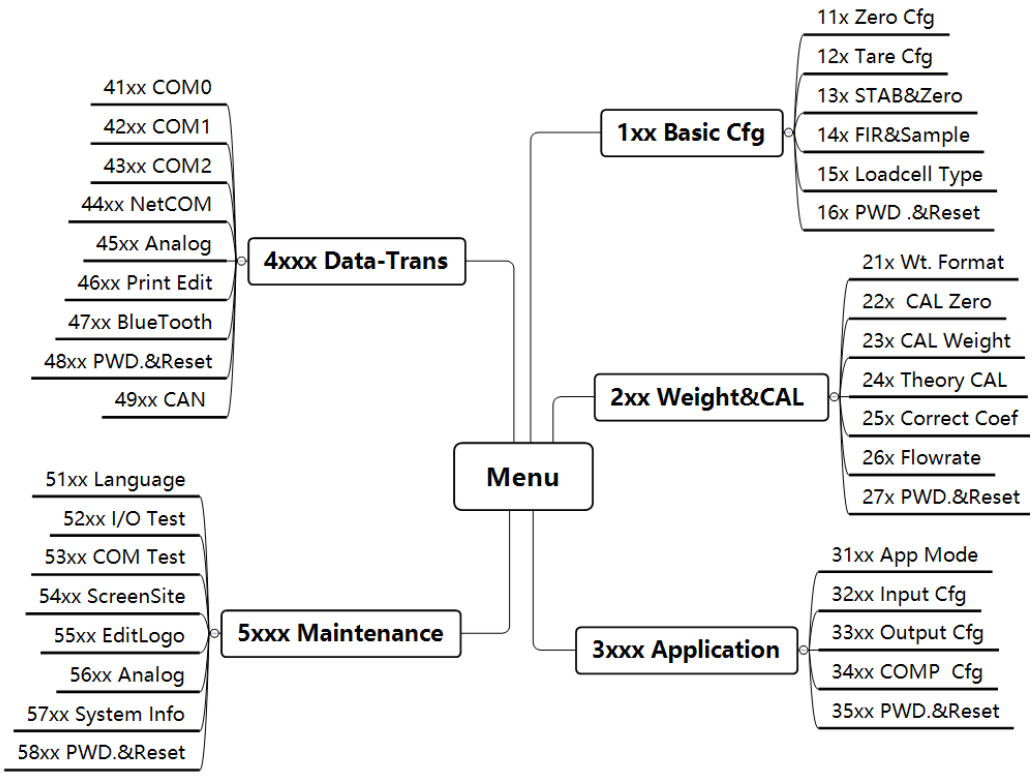
3.8 PROFIBUS bus Connection

The table provides a PROFIBUS interface (optional interface, to be declared for ordering). For specific DP parameter settings, please refer to section 10.10 DP Communication. And the interface definition on the right:

Attention: The terminal of the bus needs to be equipped with an adaptive resistor (120R).

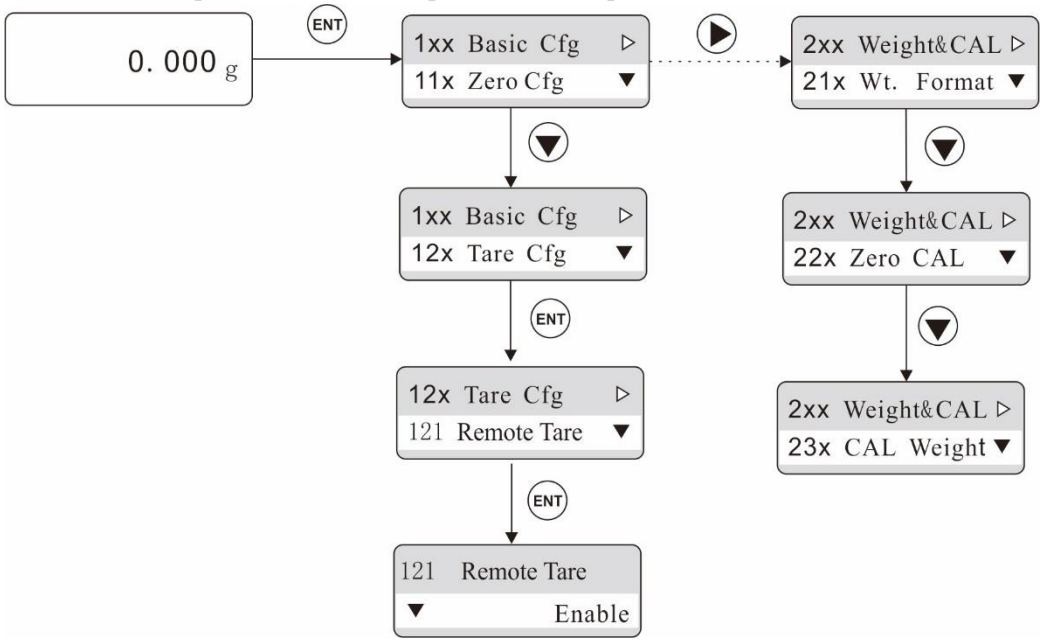


4 Menu Review

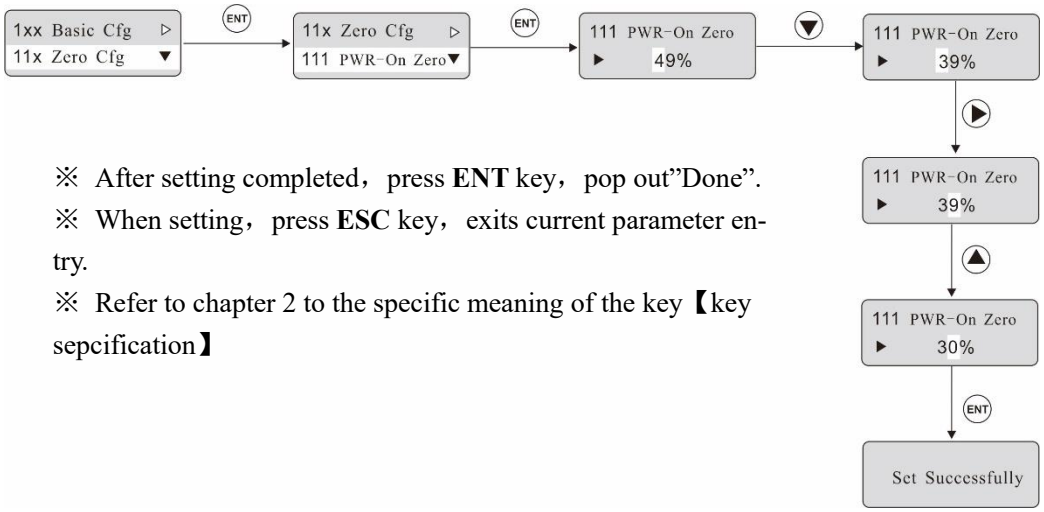


4.1 Parameter option and setting

Parameter option：(Select tare operation switch parameter)



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



※ After setting completed，press **ENT** key，pop out"Done".

※ When setting，press **ESC** key，exits current parameter entry.

※ Refer to chapter 2 to the specific meaning of the key【key sepcification】

5. Basic Cfg parameter

5.1 Content

Parameter	DefaultValue	Decription
11x Zero Cfg		
111 PWR-On Zero	**0%**	Range:**0**~**99**(✕full range%); When set to **0**, turn off PWR-On Zero; **1-100:**according full range 1-100% zeroing;**101:**reset to last zero before turn off.
112 Remote Zero	Enable	After enabling, the zeroing operation can be carried out through the communication port.If set to disable, the communication port can not be reset.
113 Zero Range	**20**%	Range:**1**~**99**(✕full range %), When the value is 0, zeroing is prohibited.
12x Tare Cfg		
121 Remote Tare	Enable	Range:Enable; Disable
122 Tare Record	Disable	Range:Enable; Disable
123 NetSign COR	Disable	Range:Disable; Correct Tare; BackToGross
124 Preset Tare	**0**	Range:**0**~ Full Scale
125 Tare Mode	**Mode1**	Range：Mode1；Mode2；Mode1：Do not tare when the weight is negative；Mode2：Tare when the weight is negative.
13x STAB&TrZero		
131 STAB Range	**1d**	Range:**0-99d,**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, if the weight change range is not greater than this value, the weight is stable during the stability determination time.
132 STAB Timer	**1000ms**	Range:**1-5000**, Milliseconds.If the weight range does not exceed the STAB range during that time, the weight is stable
133 TrZero Range	**1d**	Range: **0-99d**.Turn off the zero tracking function when the parameter is 0.When the parameter is not zero, the weight change is less than the range of zero tracking time, the system will automatically track zero.
134 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
14x FIR&Sample		
141 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.
142 Adv. Filter	**0d**	That is defibrillate Filter.Range **0-99d**, At 0, the steady-state filter is turned off.When the parameter is non-zero, if the weight change is within the range, then the steady-state filter is started.
143 AD Sample Rate	**200**	Range:**50**; **60**; **100**; **120**; **200**; **240**; **400**; **480**; **800**; **960**（**SPS**）.
15x LoadcellType		

151 Input Range	**0-10mV**	Range：**0-5mV**；**0-10mV**；**0-15mV**，**-5-5mV**；**-10-10mV**;**-15-15mV.** The meter adjusts the signal acquisition range according to the input range to ensure more accurate metering. This instrument uses 5V bridge, 1mv/V sensor, signal range is 0~5mV, and so on.
16x PWD.&Reset		
161 Reset Basic	//	Restore factory setting operation for basic parameters
162 Remote Edit	Enable	After enabling, the basic parameters can be set through the communication port.Other-wise, the communication port is read-only to the basic parameters.
163 PWD. Protect	Disable	Setting range:Enable;Disable
164 PWD. Edit	**000000**	To change the password for accessing basic parameters, enter the old and new passwords.

5.**2** Zero Cfg

Zero success condition：

1） Weighing platform stabe；**2**）Weight is in zero range.

Zero Cfg：

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

5.**3** Tare function

Remote Tare Switch：

Enable/Disable Tare functions such as Tare and Cear Tare by the serial port. The tare weight can be set only when this parameter is enabled.

Tare Record：

Enable/Disable Tare Record function. If is enable,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 gross weight state, when clear tare, transmitter record tare, enter Net weight mode.

② The transmitter can’t be reset in the mode of Net Weight.

③ When the tare record function and PWR-On zero are simultaneously activated, PWR-On zero does not take effect.

Tare Mode：

Mode 1: If the weight is negative and stable, taring cannot be carried out.

Mode 2: If the weight is negative and stable, taring can be carried out.

5.**4** Continuous taring

Continuous tare is a function that deducts the weight of containers or added items multiple times during the weighing process.

Users can gradually reset the current weight to zero by repeatedly triggering the tare operation. Meanwhile, the device automatically records the tare weight deducted each time and finally displays the cumulative net weight of all items. It is suitable for scenarios where multiple materials need to be added in batches or containers need to be changed.

6. Weight Format

When GMT-**X1** 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	Initial Value	Decription
21x Wt. Format		
211 Unit	**kg**	Range：**t**；**kg**；**g**；**lb**
212 Decimal	**0**	Range：**0**；**0.0**；**0.00**；**0.000**；**0.0000** (Note: No need to re-calibrate after modification)
213 Division	**d=1**	Range: d=1, d=2, d=5, d=10, d=20, d=50, d=100, d=200, d=500, default: d=1
214 Full Scale	**10000**	The full range value of the transmitter is generally taken from the load cell range, and when it exceeds the range, prompt message is given, so as not to damage the load cell by weighing over pressure .Range: **0~999999.**
22x CAL Zero		
221 Auto Capture	After emptying the scale, press the "OK" button and set the current state to zero	
222 Key In mV	Manually and manually input the voltage of 4 decimal points as the zero point voltage	
23x CAL Weight		
231 Weight CP1	Calibrate weight points, support 5-point calibration. When the front point is calibrated, the other weight points will be reset to the uncalibrated state (the default value is 10.0000mV, 10000kg). If the marking point 1 is performed, the marking point 2-5 is reset to 0	
232 Weight CP2		
233 Weight CP3		
234 Weight CP4		
235 Weight CP5		
24x Theory CAL		
241 LC mV/V	**2.0000**	True load cell sensitivity, 4 decimal points, average sensitivity if multiple load cells
242 LC Capacity	**10000**	The true load cell range, if there are more than one load cell, is the sum of all load cell ranges.
243 Use T-CAL	Disable	Enable calibration of theoretical values and make them effective. Range: Enable;Disable.
25x Correct Coef		
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
26x Flowrate		
261 SampleWindow	**1.000s**	Range：**0.500-60.000s**.Define the length of sample window for flowrate calculation.
262 Max Flowrate	**10000**	Range **0**~**999999**, Define the max flowrate value. For analog output indication.

263 FlowrateUint	Hour	Range：0-Hour, 1-Minute, Define Flowrate display unit.
27x PWD.&Reset		
271 Cal Reset	//	Restore factory setting operation for calibration parameters (hardware protection switch must be disable)
272 Remote Cal	Disable	After enabling, the calibration parameters can be set through the communication port.Otherwise, the communication port is read-only to the basic parameters. Range: Enable;Disable.
273 HWD. Protect	Disable	Calibration is not allowed until the hardware protection dial code is enabled in the ON position. Range: Enable;Disable.
274 PWD. Protect	Disable	After enabling to enter the change parameter setting option requires password, password is required when switching. Range: Enable;Disable.
275 PWD. Edit	**000000**	To change the password for accessing basic parameters, enter the old and new passwords.

6.2 CAL Zero

Zero calibration is the zero calibration of the scale.

Zero calibration can be done in two ways: automatic 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. After empty the scale, press **ENT** to calibrate the current state to zero.

Loadcell value
0. 6688mV

Key In mV：

User need key in voltage value of ZERO point to calibrate ZERO

222 Key In mV
00. 0000mV

※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.

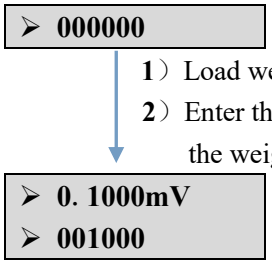
Calibration method：

※ Zero calibration should be completed before weight calibration

23x CAL Weight
231 Weight CP1

↓ Press **ENT**

➢ **0. 0000mV**



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

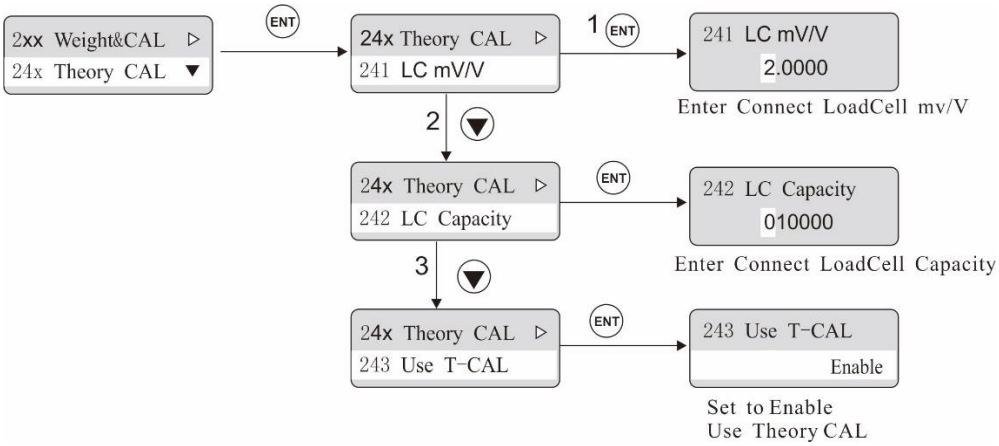
Calibration of theory value means that weight calibration is performed by inputting load cell sensitivity and load cell range value

Theory CAL takes 3 steps:

1） Set load cell sensitivity（If multiple load cell are connected, input the mean value）

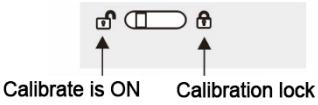
2） Set total range of the load cell（If connected to more than one load cell, input total range）

3） Turn on "Use T-CAL" key.



6.5 Calibration lock application

GMT-X1 calibration has dual switch protection:



1）273 hardware protection(HWD. Protect):

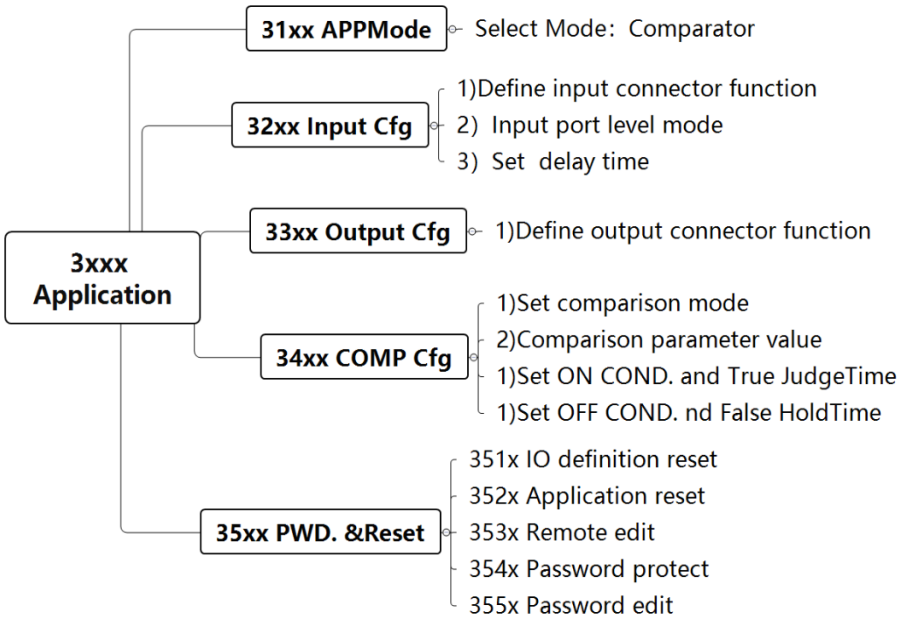
IIf this parameter is set to Enable, the status of external hardware toggle switch is judged. If the external switch is turned on, calibration is allowed. Dial to lock, calibration is not allowed. If this parameter is set to Disable, the hardware switch status is not determined.

2) 272 remote calibration(Remote Cal):

Remote calibration switch is the calibration parameter protection switch of communication port, restricted by the hardware protection status.

When the hardware protection switch is enable and the remote calibration switch is also set as enable, transmitter calibration can be carried out through the communication port. When the hardware protection switch is disable, no matter the remote calibration is set as enable or disable, transmitter calibration can not be carried out through the communication port.

7.Application setting



7.1 Input Cfg

The output port configuration parameter is in item 32xx of the transmitter.The transmitter is standard equipped with 3 input and 5 output, and can be extended with 2 input and 4 output, which can satisfy the function of 5 in and 9 out IO.

Each input port can set the application function, mode (high and low level is effective), delay time.

Parameter	Parameter Item	Specification
32xx Input Cfg（IN1–IN3 and Extend Port）	INx Function	NONE，ZERO，CAL-ZERO，TARE，CLEAR-TARE，GROSS/NET，COMP-ON，PRINT, P_EMPTY_LINE ※It is defined as none that is, the input port is nonfunctional
	INx Mode	Range: Low_Level, High_Level. Default: Low_Level. Define which type input signal to detect. **(Note: IN 1 mode changes synchronously with IN 2/3 mode, and Extended IN1 mode changes synchronously with Extended IN2 mode)**
	INx Delay Time	Avoid misjudgment caused by signal jitter. Initial Value：**5ms**；Range：**0–200ms**

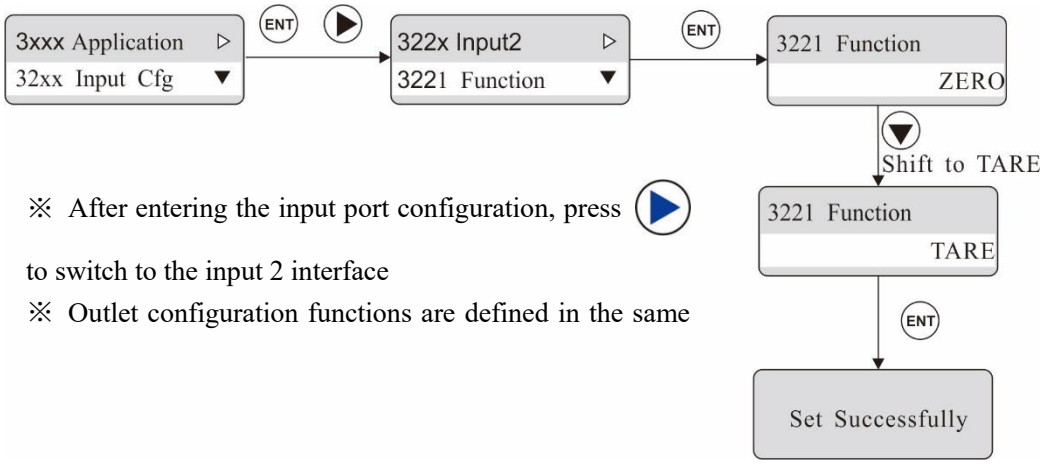
※When select the IO add-on board in the special interface, the extension input 1 and input 2 will be available. The function, mode and debounce of the extension port are the same as the normal input port

Input port application function

Function	Implication
NONE	No input
ZERO	When this signal input is valid, the meter performs zero clearing.
CAL-ZERO	When this signal input is valid and (273) HWD. Protect is diasble, the instrument performs zero calibration
TARE	When the signal input is valid, the peeling function is performed.

CLEAR-TARE	hen the signal input is effective, it will perform the skin clearing function, that is, the removed tare weight recovery.
GROSS/NET	Switch gross/net weight when this signal input is valid.
COMP-ON (Level signal)	This function is defined and whether the output of the comparison point is controlled by the state of the **IO** port. If the comparison condition is true and the input is valid, the comparator output will be valid, otherwise it will not be output. If the function is not defined, the comparison condition is true and there is an output, which is not controlled by the input port.
PRINT	When this signal input is valid, the print function is performed.
P_EMPTY_LINE	In the non-print state, when the signal input is valid, the paper feed is printed for 1 line.
KEYBOARD LOCK	When this input is valid, all the keys cannot be used

Example：Define Input2 as TARE



※ After entering the input port configuration, press to switch to the input 2 interface

※ Outlet configuration functions are defined in the same

7.2 Output Cfg

Output Cfg is in item 33xx of the transmitter.Each outport can set the application function and mode separately (high and low level is effective).No initial output by default.Must be defined by the customer.

Parameter	Parameter Item	Specification
33xx Output Cfg(O1–O5 and Extend Port）	Output X Function	**Optional:NONE,COMP1-8,STABLE,ZERO,NET,PRINTING,-SIGN,COM-Pulse.** ※Define no function means Output no function.
	Output X Mode	Initial value: Low_level; Optional: High_level, Low_level; **(Note: When Extension 1 is equipped with a 3-in-4-out relay output interface, Out1-Out4 are relay outputs and do not support mode switching. Other I/O extensions support mode switching.)**

Outport application function

Function	Implication
NONE	No-output
COMP **1-8**	COMP **1–8** When achieve, has output.
STABLE	When **STABLE** is valid, has output
ZERO	Valid when Zero indicator light has output
NET	When is Net Weight, output is valid
PRINTING	When printing, output is valid

-SIGN	When weight is less than 0,output is valid
COM-Pulse	1HZ square wave is emitted only for serial communication

※When the Extended IO Add-on Board is selected, the Extended Outlet 1-4 function selection is available. The function and mode of the Extended Outlet is the same as that of the ordinary Output.

7.3 Application

Application parameters are configured in item 34xx of the transmitter. In the application parameters, set the Comp. Mode, comparison conditions, effective time and failure time parameter values.

GMT-X1 has **8** Comp. Mode function, **341x—348x**

Parameter	Specification
Comp. Mode	Weight/flow judgment: **OFF;W<=CV1;W=CV1;W!=CV1;W>=CV1;CV1<=W<=CV2;W <[CV1,CV2]>W;F<=CV1; F=CV1; F!=CV1; F>=CV1;CV1<=F <=CV2; F <[CV1,CV2]> F**
CompValue 1	The first priority is higher, and the default comparison value is taken when there is only one comparison parameter.Initial value: 0;Range: - 999999-999999. （Press▲▼to switch the sign）
CompValue 2	Used when two comparison values are needed. The value must be greater than the initial value of the first comparison value: 0; Range: - 999999-999999. （Press▲▼to switch the sign）
ON COND.	When the comparison is successful, the meter outputs additional constraints in effect. 0:Immediately output (as long as the comparison conditions are established immediately output); 1:Stable output (when the comparison conditions are established and the current weight is stable output); 2:Debounce mode (the success time exceeds the decision time output).Initial value: output immediately
TRUE JudgeT	The minimum decision time for success. Default：**1000ms**；Range：**0~50000ms**
OFF COND.	The extra requirement for indicator to deactive output when comparator equation is FALSE. Three options: Immediately, Stable, Debounce Immediately: output immediately OFF, if equation is FALSE; Stable: output OFF, if equation is FALSE and weight is stable; Debounce: output OFF, if equation is FALSE and and keep FALSE status longger than FALSE HoldT time ; In Programmer Mode, this parameter can not be seen.
FALSE HoldT	**Range: 0-50000ms,default: 1000ms,** If OFF COND. Is Delay mode, the comparator equation has to be FALSE and keep FALSE status longger than FALSE HoldT time to force indicator deactive output signal if not Delay mode, this parameter can not be seen.. In Programmer Mode, this parameter can not be seen.

7.4 Application Example

Example 1：When the weight is greater than or equal to 500g, the output 1 is valid; when the weight is not satisfied and the weight is stable, the output 1 is invalid.

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, and the output 4 is effective after 5mS delay; if the condition is not met, the output 4 is invalid after 5mS delay.

Setting：**1**）Outlet 4 is set to: Comparator 1

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

3）COMP Value-1 is set to: 200.

4）COMP Value-2 is set to 500 (this value should be greater than 4.3.1.2).

5）ON COND**.** is set as: Delay output

6）TRUE JudgeT set to：**5ms**.

7）OFF COND**.** set to Debounce 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<=W<=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).

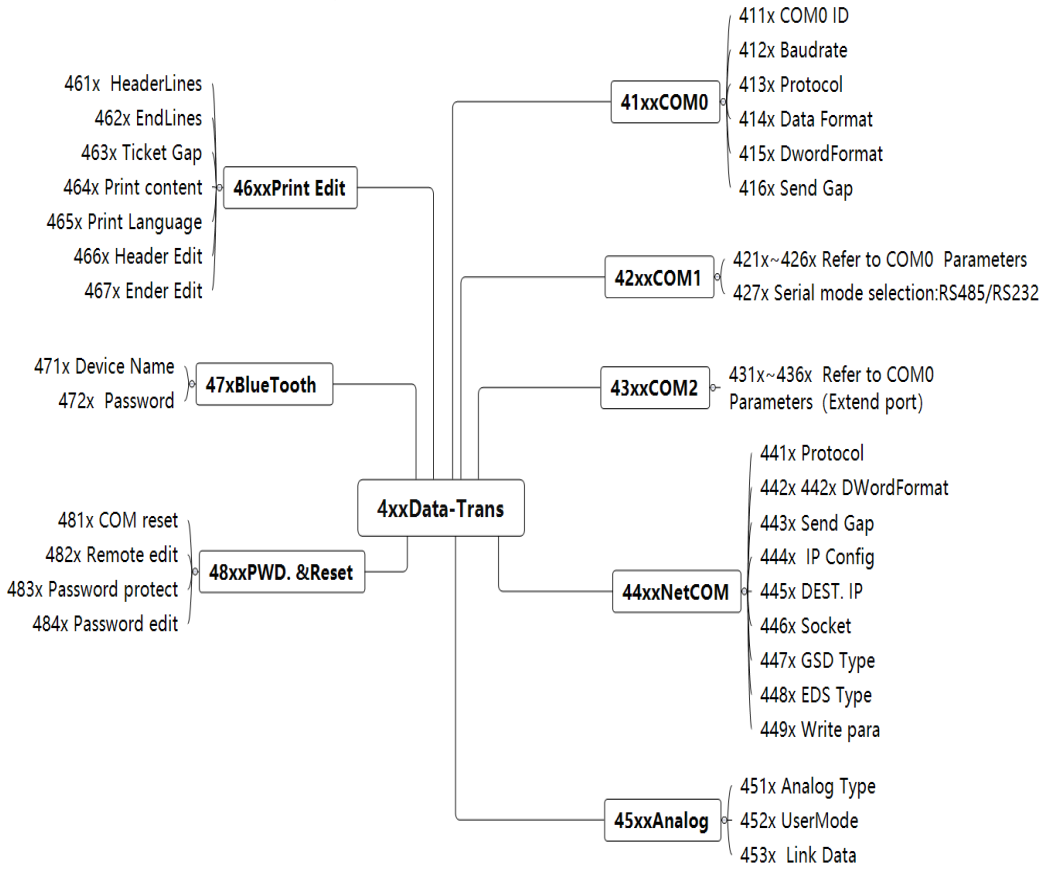
8) OFF COND**.** set to: Output immediately.

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. Data-Trans

GMT-X1 has various communication function interfaces: 1 channel RS485 (serial port 0), 1 channel RS232/485 (serial port 1), 1 channel RS485 optional port (serial port 2), 1 channel analog optional interface, 1 network port communication interface,bus communication interface and DP bus communication interface.(support TCP, PN/EIP/**CCLink-IE/Profibus-DP/EtherCAT** bus functions).



8.1 Serial port parameters

Parameters	Initial Value	Specification
411x COM0 ID	**01**	Range：**01-99**
412x Baudrate	**38400**	Range：**1200，2400，4800，9600，19200，38400，57600，115200**
413x Protocol	**Modbus RTU**	Range：**ModbusRTU**，**ModbusAscii**，Continuous send**A**（**CB920**）,Continuous send **B**（**tt**）,**r-Cont**,**rE-Cont**,**YH** Protocol, Print
414x DataFormat	**8-E-1**	Range：**8-N-1**, **8-E-1**, **8-O-1**, **7-N-1**, **7-E-1**,**7-O-1**
415x DwordFormat	**AB-CD**	**AB-CD**（Hi_low）,**CD-AB**（Low_Hi）optional.
416x Send Gap	**20ms**	Under continuous transmission protocol, the time interval between frames.Range 0-1000ms, Default: 20ms
427xRS485/RS232	**485**	Range: 485 mode, 232 mode is optional.

		※ Parameter only available under serial port 1

※ For other serial port parameters, please refer to the parameter table of COM0 above. Among them, COM2 supports 427x serial port mode switching.

8.2 NetCOM parameters

8.2.1 Parameters description

Parameters	Initial Value	Specification
441x Protocol	**Modbus/TCP**	When selecting a normal network port, the protocol has **Modbus/TCP,Cont-A/TCP**,**Cont-B/TCP**,**r-Cont/TCP**, **rE-Cont/TCP**, **YH/TCP**, default **Modbus/TCP**
442xDWord mode	**AB-CD**	Range：**AB-CD**（Hi-Lo）,**CD-AB**（Lo-Hi）
443x Send Gap	**20ms**	When you select UDP mode to send, the parameters are visible and used to control the time interval between frames.The range of 0-1000 ms Parameters are not visible when other protocols are selected
444x IP Config	**192.168.0.100**	This parameter is not visible if there is no additional board for the NetCOM port.
445x DEST. IP	**192.168.0.101**	The IP of the destination address is visible only when using the UDP-type protocol, otherwise It's not visible
446x Socket	**502**	Range：**1-65535**
447x GSD Type	Simple	Standard/Simple/Simple2 optional； If the PN bus communication method is selected, Standard:Use the original GSD, chapter**10.7.2** Simple：GSD is a simplified version of the standard GSD, for which please refer to Chapter **10.7.3** Simple2: Use a simplified version of the loop parameters, please refer to Chapter **10.7.3**.(Note: Simple2 is no more than a loop parameter for compatibility with company blue label versions)
448x EDS Type	Simple	The EIP buscommunication mode, Standard：Use the original **EDS**, chapter **10.8.2.** Simple：EDS is a simplified version of the standard GSD, for which please refer to Chapter **10.8.3**
449x Write SW	**Disable**	Range:**Disable, Enable**;(This parameter is available when the PN/EIP/CClink IE additional board is selected） **Enable:**During PN/EIP/CClink IE communication, instrument parameters are controlled by "Module Parameters" in the master station configuration, and the parameters set in "Module parameters" are automatically written to the instrument when the instrument is powered on. **Disable**：PN/EIP/CClink IEcommunicating,parameters are not controlled by the master station "module parameters".

8.2.2 Built-in web -Weasy device management system

The web page system supports switching between Chinese and English. The browser language must be set to English.

System login:

Step1: set network port parameter **-444x** IP config in the transmitter. The default communication protocol is **modbus/TCP,** for example, **192.168.101.10** (note: the IP address must be on the same network segment as the IP address used to access the computer).

Step2: enter the IP address **192.168.101.10** set by the transmitter in the computer browser, open the device management system, and enter the user name (**GMadmin**) and password(123456) to log in to the system.

Step3: click pause on the main interface, the page will stop refreshing, click continue to resume refreshing.

Step4: set the parameters of the transmitter under the web page, and synchronize them to the transmitter after submission.

As below:

※Note: The reset of all parameters cannot be reset through the web page. In addition, the printing format of communication parameters and bluetooth connection cannot be modified.

8.3 Analog Parameters

Parameters		Initial Value	Specification
451x Analog Type		**4-20mA**	Range：4-20mA；0-10V；User-mA, User-V, -5~5V； -10~10V
452x User Mode	**4521** Min. Out	**0**	The parameter is valid in user power and user voltage modes.
	4522 Zero Out	**0**	
	4523 F.S. Out	**0**	
	4524 Max. Out	**0**	
453x Link Data		Weight	Range： Weight,flow, GW, NW Analog corresponds to weight form

8.4 Print Edit

When serial port parameter is set to "Print", press ▶ on the main screen to Print the data.

Print Parameters		Initial Value	Specification
461x HeaderLines		**1**	Range **0-4**
462x EndLines		**1**	Range **0-4**
463x Ticket Gap		**2**	Range **0-99**
464x Content		Display Wt	Optional: DisplayWt, Gross Wt, Net Wt, FlowRate, Net+Tare (two lines), Gross+FlowRate, All Info (Gross weight + Net weight + Tare) (print includes units)
465x Print Lang		English	Chinese, English
466x Header Edit	**4661** HeaderLine 1	---------	HeaderLine，Can edit 16 English characters
	4662 HeaderLine 2	----------	
	4663 HeaderLine 3	----------	
	4664 HeaderLine 4	----------	
467x Ender Edit	**4671** EnderLine 1	---------	EnderLine，Can edit 16 English characters
	4672 EnderLine 2	----------	
	4673 EnderLine 3	----------	
	4674 EnderLine 4	----------	

Example：

Parameters Setting		Print Content（English）
HeaderLine	**2**	----------
EnderLine	**1**	------**TEST**------
Ticket Gap	**3**	No. **Xxxxxxxx1**
Content	**Display weight**	Display weight
Print Lang	English	NT **-X.XXXX kg**
HeaderLine1	----------	------**END1**------
HeaderLine 2	------**TEST**-----	
EnderLine 1	------**END1**-----	
		---------- （Print 2rd）

8.5 Bluetooth communication

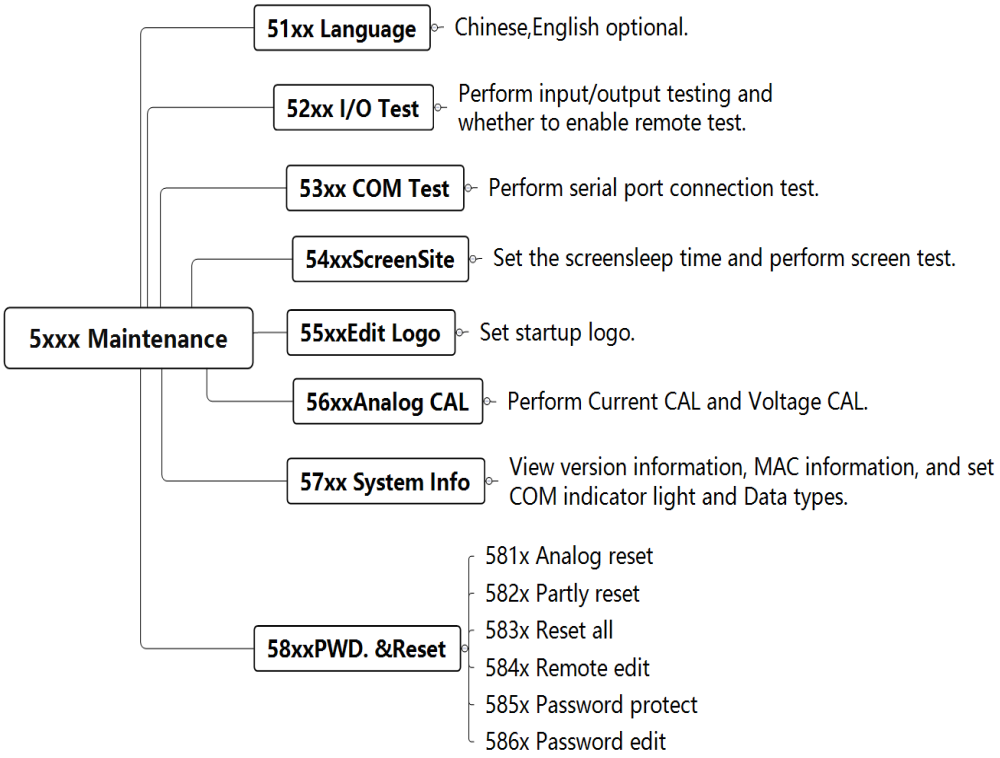
Parameters	Initial value	Description
471x Device name	Default value	Up to 6 English characters can be edited. range：'-', **0-9**，**A-Z**，**a-z**，blank
472x password	000000	Enter this password when connect bluetooth

The Apk and user manual of the Bluetooth communication software of GMT-X1 can be obtained by calling Shenzhen Jieman Technology Co., LTD.

8.6 CAN communication

CAN Parameters	Initial value	Description
491x CAN ID	**01**	Range:**01-127**
492x Baudrate	**250K**	Range:**100K，125K，250K，500K，1000K**
493x Content	**Weight**	Range:Weight,Voltage
494x Send Gap	**20ms**	Range:**0-5000ms,** Set to 0 to disable active reporting and support question and answer mode on the upper computer. Set to a non-zero value, maintain active reporting mode, and report data at the set time interval.

9. Maintenance



9.1 Parameter **Specification**

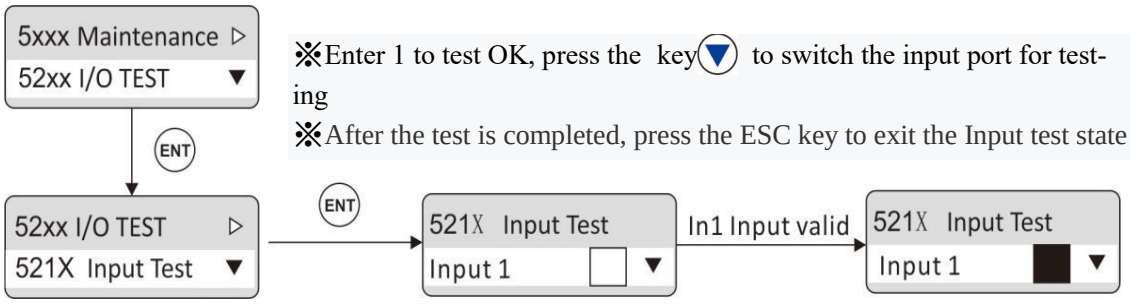
Maintenance	**Parameters**	**Specification**
51xx Language	Initial value :Chinese; **Chinese,English** optional.	
52xx I/O Test	**521x Input Test**	For details, see Chapter 9.2 I/O Test.
	522x OutPut Test	
	523x Remote Test	After opening, the switch quantity can be tested remotely through communication.
53xx COM Test	**531x Send Test**	For details, see Chapter 9.3 COM Test.
	532x Receive Test	
54xx ScreenSite	**541x ScreenSleep**	Set screen off time. Default: 600s, Range:0~3600s.Set to 0 to indicate that it will not turn off
	542x ScreenTest	When the screen is white and all indicators are on,the screen is normal.
55xxEdit 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.	
56xx Analog CAL	**561x**Current CAL	Detail operation refer to 9.4 Analog CAL.
	562x Voltage CAL	
57xx System Info	**571x MAC** Address	View the MAC address of a meter ,which can only be queried and cannot be modified.

	572x BTH MAC	View the bluetooth MAC address of a meter , which can only be queried and cannot be modified.
	573x Version	Query the software version and compilation date, which can only be queried and cannot be modified.
	574x Serial No.	Display the **138** number of the meter, which can only be queried and cannot be modified.
	575x MV Coef	Default: **1.0000**; Used to calibrate the input voltage of the instrument sensor. It can only be queried but not modified.
	576x COM LED	Default: **COM0,** optional**:COM0**, **COM 1**, **COM 2**, **NetCOM**, **CAN;** Defines which serial port the COM indicator on the front panel blinks during communication.
	577x WT Data Type	Initial value: Int; Optional: Int , Float. This parameter is used to switch between integer weight and floating-point weight in the weight display of communication parameters when communicating through PN/EIP/CCLink IE/EtherCAT.
	578x COM PU SW	Communication pulse switch. Initial value 0: Pulse; Range 0-1:0: Pulse output 1: Level output When the IO output is defined as the communication heartbeat, if the communication pulse switch is set to pulse output, then the communication heartbeat is the pulse output. If set to level output, the communication heartbeat will be level output.
58xx Oiml SWitch	Initial value: OFF, currently fixed asOFF. When set to on, switch to the OIML authentication related parameter interface.	
59xxPWD.&Reset	**591x DA CAL RST.**	Restores analog parameters to factory Settings.
	592x Partly RST.	Restore all paracontrollers of the controller (except calibration paracontrollers) to factory setting values.
	593x Full Reset.	Restore all the paracontroller values of the controller to the factory settings.
	594x Remote Edit	**Enable,Disable** Optional. After this function is enabled, you can set maintenance parameters through the communication port. Otherwise, the communication port is read-only to maintenance parameters.
	595xPWD Protest	**Enable,Disable** Optional. After this function is enabled, you need to enter the password for accessing maintenance parameters.
	596x PWD Edit	This parameter can change the password for accessing maintenance parameters.

9.2 IO Test

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

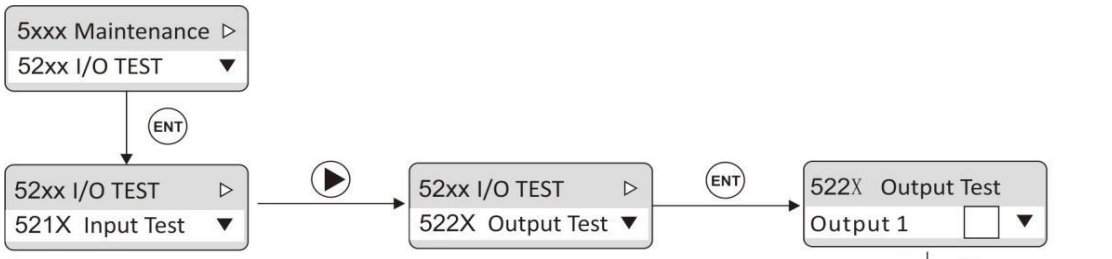
Input Test：



※Enter 1 to test OK, press the key▼ to switch the input port for testing

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

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 completed, press the ESC key to exit the output test state.

Output 1 valid means output connector state is ok

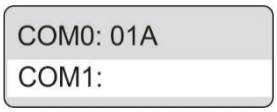
9.3 COM Test

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.

Send Test: send data "COMx **Test nnn**".If it is serial port 1, then X=1, if there is an additional board serial port test, then X=2.

Receive test: the external sends test data (ASCII code only) to the meter 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 meter and the meter displays as shown in the figure below, then the COM0 connection is normal.

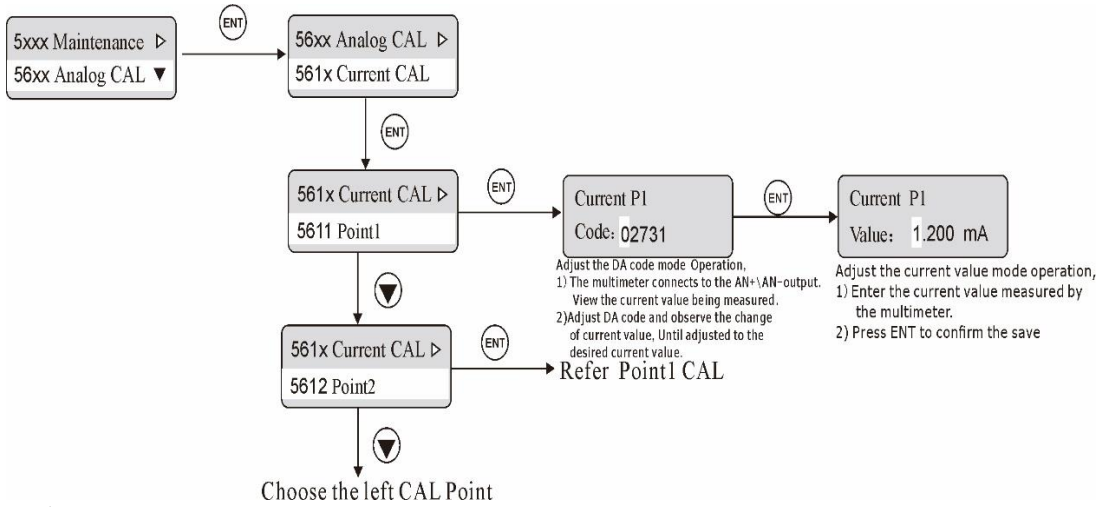


9.4 Analog CAL

If the transmitter is equipped with the analog expansion board, the analog output function

is provided. The output mode can be selected from the parameter list (see Section 8.3).Under normal display state, press ▲ key to view analog output.The format is: X.XXX.**mA/V.**

The transmitter has been calibrated on the analog output when it leaves the factory. The user does not need to calibrate the analog output.If the analog output of the transmitter is abnormal, the user can calibrate the analog output by himself.The calibration method is as follows - take the current calibration as an example (it is recommended to conduct calibration under the guidance of a professional):



1） Switch to **56xx[Analog CAL]** under the parameter of **5xxx [Maintenance]**

2） Switch to **561x[Current CAL]**, the analog calibration can be carried out by adjusting DA code and current value.

i) Adjust the DA code mode, Select "Point1", press **ENT** to enter the DA code input interface, connect the multimeter to the analog output interface, and measure the current output value. The current value changes with the DA code, adjust the DA code, and observe the current value of the multimeter until it is adjusted to the required current value, that is, the calibration is complete.

ii) Adjusting the current value: View the current measurement value of the multimeter, press **ENT** on the DA code input interface, and modify the current output value to be consistent with the measurement value of the multimeter. The remaining points are calibrated with reference to the first point.

3） Current calibration supports 5-point calibration.The customer adjusts the calibration according to his needs

10. Communication protocol and address

10.1 Modbus protocol

10.1.1 Function code and and exception code description

Function code

Function code	Item	Specification
03	Read register	Up to 125 single read registers
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.

10.1.2 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**）The end of a frame should be marked with an interval of more than 3.5 characters.Recommended for a more reliable finish.

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

ASCII

When communicating in ASCII mode, every 8 bits (1 byte) in a message is transmitted as two ASCII characters

The specific agreement of this mode is as follows:

Supported data format: 7 data bits, 1 stop bit, parity check (7-E-1)

7 data bits, 1 stop bit, odd check (7-O-1)

Code: ASCII code

10.1.3 Modbus communication data sheet

PLC Address	Display Address	Specification
The Weight State Information		

40001-40002	**0000-0001**	Current weight value(4-byte signed integer number)，When positive or negative overflows, 9999999 and -9999999 are displayed.			
40003-40004	**0002-0003**	Reserved			
40005	**0004**	Current state	Bit	Specification	※Indicates the weight tatus. When it is the current state, the status it displays "1".If the current weight is zero and stable, then the address D0D1 status bit is "1"
			D13- 15	Reserved	
			D12	bipolar	
			D11	Weight is calculated using theoretical values	
			D10	**ADC** breakdown	
			D09	Current display NW	
			D08	Million volts stable	
			D07	Load cell -overflow	
			D06	Load cell +overflow	
			D05	Weight -overflow	
			D04	Weight +overflow	
			D03	Overflow state	
			D02	display weight -	
			D01	Zero	
			D00	stable	
40006	**0005**	Error code **1**	**D13-15**	Reserved	
			D12	Remote calibration is performed when remote calibration is prohibited	
			D11	The calibration is in hardware protection	
			D10	The previous weight point is not calibrated	
			D09	Beyond minimum resolution	
			D08	Weight input exceeds the maximum range	
			D07	Weight input can't be 0	
			D06	Weight calibration less than zero or the previous standard point	
			D05	Load cell overflow is positive during weight calibration	
			D04	Load cell overflow is negative during weight calibration	
			D03	The weight calibration is not stable	
			D02	load cell overflow is positive during zero calibration	
			D01	load cell overflow is negative during zero calibration	
			D00	The zero calibration is not stable	
40007	**0006**	Error code **2**	**D15**	Reserved	
			D14	Prohibited zeroing	
			D13	The remote tare operation permit switch is not enabled when the tare is operated remotely	
			D12	Net weight status does not allow tare	
			D11	The weight is negative when taring	
			D10	The loadcell is overflowing when taring	
			D09	Negative overflow of the loadcell occurs during taring	
			D08	It is unstable when taring	
			D07	Net weight status does not allow zeroing	
			D06	The remote reset switch is not turned on during remote reset	
			D05	The load cell is overflowing when zero is cleared	
			D04	Negative load cell overflow during zero clearance	
			D03	Zero clearance is unstable	
			D02	Clear out of range	

			D01	Unstable when reset on power
			D00	Power on clear zero out of range
40008-40010	**0007-0009**	Reserved		
40011	**0010**	Process status flag bits	**D12-D15**	Reserved
			D11	Power calibration
			D10	Voltage calibration
			D09	**IO** testing
			D08	Printing,(valid when performing printing operations）
			D07	COMP **8** ON
			D06	COMP **7** ON
			D05	COMP **6** ON
			D04	COMP **5** ON
			D03	COMP **4** ON
			D02	COMP **3** ON
			D01	COMP **2** ON
			D00	COMP **1** ON
40012-40018	**0011-0017**	Reserved		
40019-40020	**0018-0019**	GW value(**4-byte signed integer number**)		
40021-40022	**0020-0021**	NW value(**4-byte signed integer number**)		
40023-40024	**0022-0023**	Tare weight value(**4-byte signed integer number**)		
40025-40026	**0024-0025**	Flow value(**4-byte signed integer number**)		
40027-40028	**0026-0027**	Display weight value（**floating-point type**）		
40029-40030	**0028-0029**	GW value (**4-byte signed floating point number**)		
40031-40032	**0030-0031**	NW value (**4-byte signed floating point number**)		
40033-40034	**0032-0033**	Tare weight value (**4-byte signed floating point number**)		
40035-40036	**0034-0035**	Flow value (**4-byte signed floating point number**)		
40037-40038	**0036-0037**	AD code after filtering		
40039-40040	**0038-0039**	Load cell volt		
40041-40042	**0040-0041**	Relative zero voltage value		
40043~40091	**0042~0090**	Reserved		
40092	**0091**	Input state area	**Bit**	Specification
			D05	Reserved
			D04	Enter 5 state (extended input 2)
			D03	Enter 4 state (extended input 1)
			D02	Enter 3 state
			D01	Enter 2 state
			D00	Enter 1 state
40093	**0092**	Reserved		
40094	**0093**	Output state area	**Bit**	Specification
			D09-15	Reserved
			D08	Output state 9 (extended output 4)
			D07	Output state 8 (extended output 3)
			D06	Output state 7 (extended output 2)
			D05	Output state 6 (extended output 1)
			D04	Output state 5
			D03	Output state 4
			D02	Output state 3
			D01	Output state 2
			D00	Output state 1
40095~40100	**0094~0099**	Reserved		
Basic parameter area, remote setting parameter 162 set to open to read and write, otherwise read only				
40101-40102	**0100-0101**	PWR-On Zero	0%-101% of the maximum range, default: 0(Disable)	
40103-40104	**0102-0103**	Remote Zero ON/OFF	Range: 0 (Disable), 1 (Enable); Default: 1 (Enable)	
40105-40106	**0104-0105**	Zero range	1%-99% of the maximum range, default: 20%	
40107-40108	**0106-0107**	Remote Tare	Range: 0 (Disable, 1 (Enable); Default: 1 (Enable)	
40109-40110	**0108-0109**	Tare Record	Range: 0 (Disable), 1 (Enable); Default: 1 (Disable)	

40111-40112	**0110-0111**	NetSign COR	Range: 0 (Disable), 1 (Correct Tare), 2 (BackToGross);Default: 0 (Disable)	
40113-40114	**0112-0113**	Preset tare	Range: 0~ full scale. Initial values: 0	
40115-40116	**0114-0115**	STAB Range	Range:**0-99d**,default **1**	
40117-40118	**0116-0117**	STAB Timer	Range:**1-5000** ms,default **1000**	
40119-40120	**0118-0119**	TrZero Range	Range:**0-99d**,default **1**	
40121-40122	**0120-0121**	TrZero Time	Range:**1-5000**ms,default **1000**	
40123-40124	**0122-0123**	Digit-Filter	Range:**0-9**,default **4**	
40125-40126	**0124-0125**	Adv. Filter	Range:**0-99d**,default **0**	
40127-40128	**0126-0127**	**AD** Sample Rate	Range:**0-9**（corresponding **0-50**；**1-60**；**2-100**；**3-120**；**4-200**；**5-240**；**6-400**；**7-480**；**8-800**；**9-960**）default **4**：**200Hz**	
40129-40130	**0128-0129**	Input Range	Range:**0-5**（corresponding **0**：**0-5mV**；**1**：**0-10mV**；**2**：**0-15mV**，**3**：**-5-5mV**；**4**：**-10-10mV**；**5**：**-15-15mV**）default：**1**（**0-10mV**）	
40131-40132	**0130-0131**	Tare Mode	Range: 0（Mode1）,1（Mode2）,default 0	
40133~40200	**0132~0199**	Reserved		
40201-40202	**0200-0201**	Unit	Range:**0-3**；**0-t**，**1-kg**，**2-g**，**3-lb**	
40203-40204	**0202-0203**	Decimal	Range: **0-4**；**0-0**，**1-0.0**，**2-0.00**，**3-0.000**，**4-0.0000**	
40205-40206	**0204-0205**	Division	Range: **1**，**2**，**5**，**10**，**20**，**50**，**100**，**200**，**500**	
40207-40208	**0206-0207**	Full Scale	Range:**0-999999.**	
40209-40210	**0208-0209**	Reserved		
40211-40212	**0210-0211**	Auto Capture	Only write **1**； write **1**，Performs zero calibration of the current state. Fix four decimal places	
40213-40214	**0212-0213**	Key In mV	Range:**0-150000**； Write millivolts	
40215-40216	**0214-0215**	Weight CP1	Write the weight value to the calibration weight point 1 calibration	Read as the relative millivolt value of the calibration point.
40217-40218	**0216-0217**	Weight CP2	Write the weight value to the calibration weight point 2 calibration	
40219-40220	**0218-0219**	Weight CP3	Write the weight value to the calibration weight point 3 calibration	
40221-40222	**0220-0221**	Weight CP4	Write the weight value to the calibration weight point 4 calibration	
40223-40224	**0222-0223**	Weight CP5	Write the weight value to the calibration weight point 5 calibration	
40225-40226	**0224-0225**	LC mV/V	Write the actual sensitivity of the load cell for the theoretical value calibration	
40227-40228	**0226-0227**	LC Capacity	Write the total range of the load cell for theoretical calibration	
40229-40230	**0228-0229**	Use T-CAL	Write 1 to enable theoretical value calibration, write 0 to use calibration data	
40231-40232	**0230-0231**	Correct Coef	Write the coefficient to modify the calibration, write the data integer type, the system default data write data with 5 decimal point	
40233-40234	**0232-0233**	Flow SampleWindow	Range:**1000-60000**. Write **10000** equivalent to setting to **10.000**s	
40235-40236	**0234-0235**	Max Flowrate	Range: 0-999999. Sets the maximum amount of flow	
40237-40238	**0236-0237**	FlowrateUint	Range:**0-1**；**0**：Hour，**1**：Minute	
40239~40300	**0238~0299**	Reserved		
Apply parameter area, address range 4x00301-4x08000.The remote setting (352X) is read-write when enabled, otherwise read-only				
40301-40302	**0300-0301**	Select Mode	Comp. Mode：Only read.	
40303-40304	**0302-0303**	Input1 function	Comp. Mode：parameter range **0-9**，**0**-None，**1**-ZERO，**2**- CAL-ZERO，**3**-TARE，**4**- CLEAR-TARE， **5**- GROSS/NET， **6**- COMP-ON， **7**-PRINT， **8**-P EMPTY LINE., 9-KEYBOARD LOCK	
40305-40306	**0304-0305**	Input1 mode	Range：**0-1**，**0**：Low level，**1**：High level	
40307-40308	**0306-0307**	Input1 Delay	Comp. Mode：parameter range **0ms-200ms**，default **5ms**.	
40309-40310	**0308-0309**	Input2 function	Refer to input 1 function description	
40311-40312	**0310-0311**	Input2 mode	Refer to input 1 mode description	
40313-40314	**0312-0313**	Input2 Delay	Refer to input 1 Delay description	

40315-40316	**0314-0315**	Input3 function	Refer to input 1 function description
40317-40318	**0316-0317**	Input3 mode	Refer to input 1 mode description
40319-40320	**0318-0319**	Input3 Delay	Refer to input 1 Delay description
40321-40322	**0320-0321**	ExIN1 Function	Refer to input 1 function description, can write when there is IO attached board, otherwise read only
40323-40324	**0322-0323**	ExIN1 Mode	Refer to input 1 mode instructions, only when there is IO attached board can write, otherwise read only
40325-40326	**0324-0325**	ExIN1 Delay	Refer to input 1 to shake instructions, IO attached board can only write, otherwise read only
40327-40328	**0326-0327**	ExIN2 Function	Refer to input 1 function description, can write when there is IO attached board, otherwise read only
40329-40330	**0328-0329**	ExIN2 Mode	Refer to input 1 mode instructions, only when there is IO attached board can write, otherwise read only
40331-40332	**0330-0331**	ExIN2 Delay	Refer to input 1 to shake instructions, IO attached board can only write, otherwise read only
40333-40334	**0332-0333**	OUT1 Function	Range 0-15, Correspondence: **0-None**, 1-8:COMP 1 ~COMP 8, 9-STABLE,10- ZERO, 11-NET, 12-PRINTING,13- -SIGN, 14-Communications Heartbeat, 15-WEIGHT-ERROR
40335-40336	**0334-0335**	OUT1 Mode	Range:0-1, 0: low output, 1: high output
40337-40338	**0336-0337**	OUT2 Function	Refer to the output 1 function
40339-40340	**0338-0339**	OUT2 Mode	Refer to the output 1 pattern
40341-40342	**0340-0341**	OUT3 Function	Refer to the output 1 function
40343-40344	**0342-0343**	OUT3 Mode	Refer to the output 1 pattern
40345-40346	**0344-0345**	OUT4 Function	Refer to the output 1 function
40347-40348	**0346-0347**	OUT4 Mode	Refer to the output 1 pattern
40349-40350	**0348-0349**	OUT5 Function	Refer to the output 1 function
40351-40352	**0350-0351**	OUT5Mode	Refer to the output 1 pattern
40353-40354	**0352-0353**	Ext.OUT1 Function	Refer to the output 1 function
40355-40356	**0354-0355**	Ext.OUT1 Mode	Refer to the output 1 pattern
40357-40358	**0356-0357**	Ext.OUT2 Function	Refer to the output 1 function
40359-40360	**0358-0359**	Ext.OUT2 Mode	Refer to the output 1 pattern
40361-40362	**0360-0361**	Ext.OUT3 Function	Refer to the output 1 function
40363-40364	**0362-0363**	Ext.OUT3 Mode	Refer to the output 1 pattern
40365-40366	**0364-0365**	Ext.OUT4 Function	Refer to the output 1 function
40367-40368	**0366-0367**	Ext.OUT4 Mode	Refer to the output 1 pattern
40369~40500	**0368~0499**	Reserved	
40501-40502	**0500-0501**	COMP 1- Comp. Mode	Initial value: **1:(W<=CV1),Range:0-12** 0:(**OFF);1:(W<=CV1);2:(W=CV1)**;3:(**W!=CV1)**;4 **(W>=CV1)**;5:(**CV1<=W<=CV2**;6:(**W <[CV1,CV2]>W);7:(F<=CV1); 8:(F=CV1)**;**9 (F!=CV1)**; **10:(F>=CV1)**;**11:(CV1<=F <=CV2)**; **12:(F <[CV1,CV2]> F)**
40503-40504	**0502-0503**	COMP 1- CompValue 1	Comp. Mode：CompValue **1**，directed number，range: **-999999-999999**.
40505-40506	**0504-0505**	COMP 1- CompValue 2	Comparing patterns：CompValue **2**，directed number，range:**-999999-999999**. > CompValue **1**
40507-40508	**0506-0507**	COMP 1- ON COND.	Range：**0-2**，correspond to：0:Immediatelyt; 1:Stable; 2:Debounce mode
4050940510	**0508-0509**	COMP 1- TRUE JudgeT	minimum decision time for success，range **0-50000ms**，default **1000**
4051140512	**05100511**	COMP 1- OFF COND.	Range：**0-2**，correspond to：0:Immediatelyt; 1:Stable; 2:Debounce mode
40513-40514	**0512-0513**	COMP 1- FALSE HoldT	Mini failure timer，range **0-50000ms**，default **1000**
40515-40520	**0514-0519**	Reserved	
40521-40540	**0520-0539**	COMP2 parameter	Refer to comparator 1 parameters
40541-40560	**0540-0559**	COMP3 parameter	
40561-40580	**0560-0579**	COMP4 parameter	
40581-40600	**0580-0599**	COMP5 parameter	
40601-40620	**0600-0619**	COMP6 parameter	

40621-40640	**0620-0639**	COMP7 parameter	
40341-40660	**0640-0659**	COMP8 parameter	
40661~48000	**0660~7999**	Reserved	
Communication parameter setting area, Remote Settings (482X) are read-write when enabled, otherwise read-only			
48001	**8000**	**COM0** ID	COM **0** COM0 ID；Range：**01-99**
48002	**8001**	**COM0** Baudrate	Range：**0-7** correspond to：**1200**，**2400**，**4800**，**9600**，**19200**，**38400**，**57600**，**115200**；Initial value **5**（**38400**）
48003	**8002**	**COM0** Protocol	Including：**0-Modbus/RTU**, **1-Modbus/Ascii**, **2-Cont-A**, **3-Cont-B**, **4-r-Cont**, **5-rE-Cont**, **6-YH**, **7**-print，default **0**（**Modbus/RTU**）
48004	**8003**	**COM0** Data Format	Range：**0-8N1**，**1-8E1**，**2-8O1**，**3-7E1**，**4-7O1** Initial value：**1**（**8E1**）
48005	**8004**	**COM0** DwordFormat	**0-AB-CD**, **1-CD-AB**. Initial value:**0**（**AB-CD**）
48006	**8005**	**COM0** Send Gap	Range **0-1000ms**，default：**20ms**
48007~48020	**8006~48019**	Reserved	
48021	**8020**	**COM1** ID	Refer **COM0** parameters
48022	**8021**	**COM1** Baudrate	
48023	**8022**	**COM1** Protocol	
48024	**8023**	**COM1** Data Format	
48025	**8024**	**COM1** DwordFormat	
48026	**8025**	**COM1** Send Gap	
48027	**8026**	**COM1 1-RS485**；**0-RS232**	
48028~48040	**8027~8039**	Reserved	
48041	**8040**	**COM2** ID	Refer **COM0** parameters
48042	**8041**	**COM2** Baudrate	
48043	**8042**	**COM2** Protocol	
48044	**8043**	**COM2** Data Format	
48045	**8044**	**COM2** DwordFormat	
48046	**8045**	**COM2** Send Gap	
48047~48080	**8046~8079**	Reserved	
48081	**8080**	The serial number; CAN's slave number; Range: 001-127	
48082	**8081**	Baud rate Initial value: 2-250K, range: 0-4 correspond respectively to: 0-100K, 1-125K, 2-250K, 3-500K, 4-1000K;	
48083	**8082**	Reported content; Initial value: 0, range: 0- weight, 1- voltage	
48084	**8083**	Reporting interval Initial value: 20ms; Range: 0-5000ms	
48085~48100	**8086~8099**	Reserved	
48101	**8100**	NetCOM Protocol	Protocol：**0-Modbus/TCP.** The protocols are: 0-Modbus/TCP, 1-Cont-A/TCP, 2-Cont-B/TCP, 3-r-Cont/TCP, 4-rE-Cont/TCP, 5-YH/TCP When choosebus communication,,this parameter can't be set
48102	**8101**	NetCOM DWord-Format	NetCom can set：**0-AB-CD**, **1-CD-AB** When choose bus communication, this parameter can't be set.
48103	**8102**	NetCOM Send Gap	The communication modes are: 1-Cont-A/TCP, 2-Cont-B/TCP, 3-r-Cont/TCP, 4-rE-Cont/TCP, 5-YH/TCP. This parameter is used to set the interval time for continuous transmission. Initial value: 20ms, range: 0-1000ms.
48104-48107	**8103-8106**	IP Config	The order is Part I to Part IV IP. Initial value:**192.168.0.100**
48108-48111	**8107-8110**	DEST. IP	The order is Part I to Part IV IP. Initial value:**192.168.0.101**
48112	**8111**	Socket	Range:**0-65535**，Network communication port number setting Initial value:**502**
48113	**8112**	NetCOM DEST. IP	Range:**0-65535**，Network communication port number setting
48114-48130	**8113-8129**	Reserved	
48131	**8130**	Profibus-DP Slave	Profibus-DP slave number; Range: 01-99

		ID	
48132	**8131**	Profibus-DP Write SW	Profibus-DP write switch Range: 0- Disable, 1- Enable
48133-48140	**8132-8139**	Reserved	
48141	**8140**	EtherCAT Alias	EtherCAT communication site aliases, range: 0-65535
48142	**8141**	EtherCAT WriteSW	EtherCAT communication write switch, range: 0- Disable, 1- Enable
48143-48150	**8142-8149**	Reserved	
48151	**8150**	Analog output mode	**0**：**4-20mA**；**1**：**0-10V**；**2**：User voltage；**3**：User current, **4**：**-5~5V**；**5**：**-10~10V**
48152	**8151**	Analog Min output	Range:**0-10000** or **0-24000**，default **0**. If it is not user mode, the readout will be 0 and the write will be invalid.
48153	**8152**	Zero analog output	Range:**0-10000** or **0-24000**，default **0**. If it is not user mode, the readout will be 0 and the write will be invalid.
48154	**8153**	full range analog output	Range:**0-10000** or **0-24000**，default **0**. If it is not user mode, the readout will be 0 and the write will be invalid
48155	**8154**	Analog Max output	Range:**0-10000** or **0-24000**，default **0**. If it is not user mode, the readout will be 0 and the write will be invalid
48156	**8155**	Analog Link Data	0：DisplayWt,1：Net,2：Gross,3: FlowRate
48157-48200	**8156-8199**	Reserved	
48201	**8200**	HeaderLines	Range:**0-4**，select how many headerlines to use
48202	**8201**	EndLines	Range:**-4**，select how many endlines to use
48203	**8202**	Ticket Gap	Range:**0-99**，No. of lines between each print
48204	**8203**	Content	Range:**0-6**，option：**0**:display weight,**1**:Gross，**2**:NW,**3**:flowrate,**4**:NW+ Gross（2 LINES）,**5**:Gross + flowrate,**6**:All info（Gross +NW+ flowrate）;default **0**.
48205	**8204**	Print Language	**0**：English; **1**：Chinese
48206	**8205**	Lines choose	Range:**1-8**，For header information 1-4 and tail information 1-4. It's going to be 0 when you put it on.After writing, read out is the value written
48207-48222	**8206-8221**	Character content of the printed message (16 characters)	Support：**0-9**，**a-z**，**A-Z**，’ space ‘，“-” **Ascii** code
48221~48250	**8222~8249**	Reserved	
48251-48256	**8250-8255**	Blue tooth Device Name **6 characters**	Only support：**0-9**，**a-z**，**A-Z**，’ space ‘，“-” **Ascii** code
48257~48280	**8256~8279**	Reserved	
48281	**8280**	Language	**0**：Chinese; **1**：English
48282~48300	**8281~8299**	Reserved	
Transmitter test area that allows remote testing (523X) to be read and write, otherwise read only			
48301	**8300**	**I/O test**	Parameters range：**0-1**，0: Exit I/O test mode, 1: enter serial port IO test mode, must be closed after the end of the test, the transmitter can enter the normal state.
48302	**8301**	Input1 TEST	Reading 0 means no input and reading 1 means there is input.Any value written is invalid and only valid in IO test mode
48303	**8302**	Input2 TEST	
48304	**8303**	Input3 TEST	
48305	**8304**	Ext.IN1 test	
48306	**8305**	Ext.IN2 test	
48307~48350	**8306~8349**	Reserved	
48351	**8350**	Output1 test	Range: **0-1**，write：**0**，close output，**1**:output ON（only valid in **IO** test mode）,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**	Ext.OUT1 test	
48357	**8356**	Ext.OUT2 test	
48358	**8357**	Ext.OUT3 test	
48359	**8358**	Ext.OUT4 test	
48360~48400	**8359~8399**	Reserved	

Analog calibration area address, allow remote editing (594X) can read and write, otherwise read only			
48401	**8400**	IN/OUT Analog CAL	Range: **0-2**，write：**0**，ESC remote analogue CAL state；**1**：Remote current CAL；**2**：Remote vlot CAL. Remote edit（**594x**）Use after start.
48402	**8401**	Current CALPoint1 digital code	Digital Code;Range: **0-65535**, Write: Meter outputs current according to write code. Available only in current calibration mode. Current value;Range: **0-24000**, write the measured current value, complete the current calibration of the corresponding point. Available only in current calibration mode.
48403	**8402**	Current CAL Point1Current value	
48404	**8403**	Current CAL Point2 digital code	
48405	**8404**	Current CAL Point2 current value	
48406	**8405**	Current CAL Point3digital code	
48407	**8406**	Current CAL Point3 current value	
48408	**8407**	Current CAL Point4digital code	
48409	**8408**	Current CAL Point4 current value	
48410	**8409**	Current CAL Point5 digital code	
48411	**8410**	Current CAL Point5 current value	
48412	**8411**	Voltage CAL Point1 digital code	Digital Code;Range: 0-65535, Write: Meter outputs voltage according to write code. Available only in voltage calibration mode. Voltage Value;Range: 0-10000, write the measured voltage value, complete the voltage calibration of the corresponding point. Available only in voltage calibration mode.
48413	**8412**	Voltage CAL Point1 voltage value	
48414	**8413**	Voltage CAL Point2 digital code	
48415	**8414**	Voltage CAL Point2 voltage value	
48416	**8415**	Voltage CAL Point3 digital code	
48417	**8416**	Voltage CAL Point3 voltage value	
48418	**8417**	Voltage CAL Point4 digital code	
48419	**8418**	Voltage CAL Point4 voltage value	
48420	**8419**	Voltage CAL Point5 digital code	
48421	**8420**	Voltage CAL Point5 voltage value	
48422~48600	**8421~8599**	reserved	
Function operation class address area (corresponding to the coil function), condition can read and write			
48601	**8600**	ZERO	Write 1 to perform the corresponding Read 0
48602	**8601**	TARE	
48603	**8602**	CLEAR TARE	
48604	**8603**	GW/NW	
48605	**8604**	ZEROING	
48606	**8605**	PRINT	
48607	**8606**	P_EMPTY_LINE	
48608~48900	**8607~8899**	Reserved	
48901	**8900**	All parameter reset	Write 1 to perform the corresponding reset operation. read out is **0**
48902	**8901**	Part parameter reset（All do not include calibration）	
48903	**8902**	Cal Reset	
48904	**8903**	Basic parameter reset	
48905	**8904**	**I/O** define reset	
48906	**8905**	DA Cal RST.	
48907	**8906**	App Reset	
48908	**8907**	Reset	
48908~48980	**8907~8979**	Reserved	
48981-48988	**8980-8987**	Edit the boot LOGO character 1-8 (8 characters)	The sequence corresponds to the 1-8 characters of the boot logo. ASCII code should be written in the range of 0-9,A-Z, A-Z, and space，'-'
48989~49000	**8988~8999**	Reserved	
Transmitter system information area, read-only area			
410001	**10000**	Version（Hi word）	
410002	**10001**	Version（Lo word）	Read out **10000**， **01.00.00** ver.
410003	**10002**	Edit time（year）	
410004	**10003**	Edit time（Month/Day）	
410005-410017	**10004-10016**	The transmitter serial number is 13 characters	
410018-410029	**10017-10028**	The transmitter encodes 12 characters	
410030	**10029**	Reserved	
410031-410040	**10030-10039**	The transmitter models have 10 characters	

410041	**10040**	Additional board 01 information	
410042	**10041**	Additional board 02 information	
410043~410100	**10042~10099**	Reserved	
410101-410106	**10100-10105**	NetCom **0** transmitter **MAC** address	
410107-410112	**10106-10111**	NetCom **1** transmitter **MAC** address	
410113-410118	**10112-10117**	Blue tooth **MAC** address	
410119~410150	**10118-10149**	Reserved	
410151	**10150**	**ScreenSleep**	Range:**0-3600s**，Default: 600s
410152	**10151**	**COM LED**	Range：**0-3**，**0**：**COM0** ，**1**：**COM1**，**2**：**COM2**，**3**：**NetCOM,4:CAN**
410153	**10152**	WT Data Type	**Range**：**0-1**，**0:**Float，**1:**Int，Default：Float, This parameter is available only when the PN /EIP/**CCLink-IE/ EtherCAT** firmware is used, but not when the standard network port mode is used.
410154	**10153**	COMM PU SW	Serial communication pulse switch. Range 0-1:0: Pulse output 1: level output
410155~410200	**10154-10199**	Reserved	
410201	**10200**	Basic parameter remote edit	Switch Status bit，READY ONLY： READ OUT：**0**:OFF;**1**:ON
410202	**10201**	Basic parameter PWD Protect	
410203	**10202**	Remote CAL	
410204	**10203**	CAL hardware protect	
410205	**10204**	CAL PWD Protect	
410206	**10205**	Application parameter remote	
410207	**10206**	Application parameter PWD Protect	
410208	**10207**	Communication parameter remote edit	
410209	**10208**	Communication parameter PWD Protect ON/OFF	
410210	**10209**	Remote editing of system maintenance parameters	
410211	**10210**	System maintenance parameters are password protected	
Coil address			
0x0001	**0000**	ZERO	**Content read and write coil** **Write ON valid** **Read as 0**
0x0002	**0001**	TARE	
0x0003	**0002**	CLEAR TARE	
0x0004	**0003**	GROSS/NET	
0x0005	**0004**	ZEROING	
0x0006	**0005**	PRINT	
0x0007~0x0300	**0006~0299**	Reserved	
0x0301	**0300**	All parameter reset	**WRITE ONLY** If the write ON is valid, reset is performed Read as 0
0x0302	**0301**	Part parameter reset	
0x0303	**0302**	CAL reset	
0x0304	**0303**	Basic parameter reset	
0x0305	**0304**	**I/O** define reset	
0x0306	**0305**	Analog CAL reset	
0x0307	**0306**	Application parameter reset	
0x0308	**0307**	Communication parameter reset	
0x0309~0x0400	**0308-0399**	Reserved	
0x0401	**0400**	IN1 STATE	READ Only Readout returns an input port state **0**：invalid；**1:**valid
0x0402	**0401**	IN2 STATE	
0x0403	**0402**	IN3 STATE	
0x0404	**0403**	Ext. IN1 STATE	
0x0405	**0404**	Ext. IN2 STATE	
0x0406~0x0450	**0405~0449**	Reserved	
0x0451	**0450**	OUT1 STATE	READ Only Readout returns an output port state **0**：invalid；**1:**valid
0x0452	**0451**	OUT2 STATE	
0x0453	**0452**	OUT3 STATE	
0x0454	**0453**	OUT4 STATE	
0x0455	**0454**	OUT5 STATE	

0x0456	**0455**	Ext. OUT1 STATE	
0x0457	**0456**	Ext. OUT2 STATE	
0x0458	**0457**	Ext. OUT3 STATE	
0x0459	**0458**	Ext. OUT4 STATE	
0x0460~0x0500	**0459~0499**	Reserved	
0x0501	**0500**	Remote edit（basic parameter）	Read Only Parameter
0x0502	**0501**	PWD Protect（basic parameter）	
0x0503	**0502**	Remote CAL（CAL parameter）	
0x0504	**0503**	HWD. Protect（CAL parameter）	
0x0505	**0504**	PWD Protect（CAL parameter）	
0x0506	**0505**	Remote edit（Application parameter）	
0x0507	**0506**	PWD Protect（Application parameter）	
0x0508	**0507**	Remote edit（Communication parameter）	
0x0509	**0508**	PWD Protect（Communication parameter）	
0x0510	**0509**	Remote edit（Maintenance parameter）	
0x0511	**0510**	PWD Protect（Maintenance parameter）	
0x0512~0x0800	**0511~0799**	Reserved	

10.2 Continuous send **A（CB920）**

When **GMT-X1** serial port protocol choose"Continuous send **A（CB920）**" send data according to below format.

State	**0**	Content	**0/1**	+/-	display value	Unit	**CR**	**LF**
2 bytes	**30**	**2** bytes	**30/31**	**2B/2D**	**7** bytes	**2** bytes	**0D**	**0A**

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

Gross—— **2** bytes，**GS(gross):47H 53H; NT(net weight):4EH 54H;FR(floware)：46H 52H**

0/1—— **1** byte,**(30H/31H)** interleave send.

unit—— **2** bytes, **kg：6BH 67H；G: 20H 67H etc**

Eg：When the transmitter automativally sends folling data.

53 54 30 47 53 30 2B 20 20 20 20 32 35 34 6B 67 0D 0A

It can be known that the current transmitter state is stable, gross weight, data value is positive, and current weight value is **254** kg

10.3 Cont-**B**（Continuous send -**tt**）

When **GMT-X1** serial port protocol is selected as "continuous transmission B (tt)", the collected data will be automatically sent to the master computer

STX	State1	State 2	State 3	Display value	Load cell voltage	CR	CheckSum
02H	1 byte	1 byte	20H	6 bytes	6 bytes	0D	1 byte

Status 1：

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

Status 2：

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0

Reserved	Reserved	Reserved	1- Flow	1-Unstable	1-overflow	1-negative	1-NT
Fix 0	Fix 1	Fix 1	0- Weight	0-stable	0-normal	0-postive	0-Gross

10.4 r-Cont

When **GMT-X1** serial port protocol choose "**r-Cont**", Without sending any command to the weight transmitter, the data collected will be automatically sent to the computer in the following format.

STX	**Scale No.**	**Channel No.**	**State1**	**State2**	**Display value**	**CRC**	**CR**	**LF**
02H	**2** bytes	**31H**	**1** byte	**1** byte	**6** bytes	**2** bytes	**0D**	**0A**

Scale No.-----2 bytes**, range 01~99**

State1-------1 byte

bit7	bit6		bit5	bit4		bit3	bit2		bit1	bit0
Fix0	/h	1	0	t	0	0	0	0	0	0
	/m	1	1	Kg	0	1	0.0	0	0	1
				g	1	0	0.00	0	1	0
				Lb	1	1	0.000	0	1	1
							0.0000	1	0	0
	Flow unit			Weight Unit			Decimal			

State2-------1 byte

D7	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0**
No define	No define	No define	Gross/NET	+/-	0	overflow	Stable
FIX:**0**	FIX:**1**	FIX:**0**	Gross **0**; NET **1**;	**0**：+ **1**：-	**0**：non 0 **1**：0	**0**：normal **1**：overflow	**0**：**UnStab**le **1**：Stable

Weight Value —— 6- bytes unsigned number;Returns "blank space OFL space" when weight is positive (negative) overflow.

CRC—— **2** bytes，CheckSum

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:If there is one of the following frames:

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

The sum of 02~4B is 187 (Hex), which is converted to decimal as 391.It can be calculated that the check codes of this data frame are 39 and 31

Example：

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

The current transmitter state is stable, the weight value is positive, and the current weight value is 700.

10.5 rE-Cont

In this way, no need to send any command to the weighing display, and the display will automatically send the collected data to the computer

Return data frame format description:

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

State——**2** bytes，**OL**(Overflow):**4FH 4CH; ST** (stable):**53H 54H; US** (Unstable):**55H 53H**

Content——**2** bytes，**GS**(Gross weight)：**47H 53H** ； **NT**(Net weight)：**4EH 54H**；
FR(floware)：**46H 52H**
Display value—— **7** bytes，Include Decimal，When no Decimal, high way is empty
Unit—— **2** bytes，**kg：6BH 67H；g:20H 67H** etc
Eg:
When the weighing display automatically sends the following frame of data:

53 54 2C 47 53 2C 2D 20 20 20 20 32 36 37 20 74 0D 0A

The current state is stable, the data value is positive, and the display value is -267t.

10.6 YH Protocol

When **GMT-X1** serial port protocol choose "**YH** protocol"，Transfer data in the following format.Under this protocol, the data is output in ASCII code, and each frame consists of 9 groups (including the decimal point).Data transmission starts with low and then high. There is a set of delimiter "=" between each frame of data. The data sent is gross weight, such as the current gross weight of 70.15, continuous transmission of 51.0700=51.0700...

Eg：**123.9**

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

High point is not enough to fill 0, the decimal point accounts for 1 byte, and when a negative number is negative, Bit8 is a negative sign "-".

10.7 PROFINET Protocol

The GMT-X1 display has two PROFINET-IO bus connection ports, NET1 and NET2, which can be used as a PROFINET-IO slave station to connect to the PROFINET bus.

IP address of instrument is set and viewed in parameter item 444X; The MAC address is viewed in item 571x.

10.7.1 IO state

GMT-X1 provides multi-byte IO through which the master station can read and control the status of the weighing display.In PN communication mode, two versions of I/O module addresses are provided: standard edition and compact edition. By Network port Parameter 447x you can select the version. The I/O module addresses of the two versions are as follows:

10.7.2 IO module address of standard version

10.7.2.1 PN cycle parameter address

Module1：Weight and status parameters (read register)

Offsets	Parameter	Data type	Description
0	Display weight	**DInt**	The current weight of the display, integral type, When positive or negative overflows, 9999999 and -9999999 are displayed.
4	Weight status marker bit	**Word**	**D13-D15** Reserved
			D12：bipolar，(When bipolar is selected, the flag bit is valid)
			D11：Calculate the weight using the theoretical value (prompt the user when calculating the weight using the theoretical value)
			D10：ADC failure (ADC initialization failure or sampling interruption longer than expected)
			D9：Net weight of the current display, (distinguish which weight is currently displayed)

			D8：Million volt stability, (mark of million volt stability in calibration)
			D7：Negative load cell overflow, lower than the allowable range of load cell voltage
			D6：The load cell is overflowing, beyond the allowable range of load cell voltage
			D5：Weight negative overflow, weight less than "-(maximum range + 9D)"
			D4：The weight is positive overflow, the weight is greater than "maximum range + 9D"
			D3：Overflow state, (weight or load cell abnormality)
			D2：Display weight minus sign, (display weight is a negative number)
			D1：Zero, (weight in the range of 0+/- 1/4 D)
			D0：Stable
6	Error code **1**	**Word**	**D13-D15** Reserved
			D12：Remote calibration is performed when remote calibration is prohibited
			D11：The calibration is in hardware protection
			D10：The previous weight point is not calibrated
			D09：Beyond the minimum resolution (less than 0.1uV per subdivision)
			D08：Weight input exceeds the maximum range
			D07：The weight input cannot be zero
			D06：Weight calibration less than zero or the previous standard point
			D05：Load cell overflow is positive during weight calibration
			D04：Negative load cell overflow during weight calibration
			D03：The weight calibration is not stable
			D02：Load cell overflow is positive during zero calibration
			D01：Negative load cell overflow during zero calibration
			D00：The zero calibration is not stable
8	Error code **2**	**Word**	**D14-D15** Reserved
			D13：The remote tare operation permit switch is not enabled when the tare is operated remotely
			D12：Net weight status does not allow tare
			D11: When tare, the weight is negative
			D10: Load cells overflow when tare
			D09: Negative load cell overflow during tare
			D08: Unstable when tare
			D07：The net weight status is not allowed to be cleared
			D06：The remote reset switch is not turned on during remote reset
			D05：The load cell is overflowing when zero is cleared
			D04：Negative load cell overflow during zero clearance
			D03：Zero clearance is unstable
			D02：Clear out of range
			D01：Unstable when reset on power
			D00：Power on clear zero out of range
10	Process status flag bits	**Word**	**D13-D15** Reserved
			D11：Current calibration under way
			D10：Voltage calibration under way

			D9：**IO** Testing state
			D8：In printing, (valid when the meter is performing printing operation)
			D7：The comparator 8 reaches, (the comparison condition is valid if the comparator 8 reaches)
			D6：The comparator 7 reaches, (the comparison condition is valid if the comparator 7 reaches)
			D5：The comparator 6 reaches, (the comparison condition is valid if the comparator 6 reaches)
			D4：The comparator 5 reaches, (the comparison condition is valid if the comparator 5 reaches)
			D3：The comparator 4 reaches, (the comparison condition is valid if the comparator 4 reaches)
			D2：The comparator 3 reaches, (the comparison condition is valid if the comparator 3 reaches)
			D1：The comparator 2 reaches, (the comparison condition is valid if the comparator 2 reaches)
			D0：The comparator 1 reaches, (the comparison condition is valid if the comparator 1 reaches)
12	Gross	**DInt**	Gross value（Signed integers）
16	Net weight	**DInt**	Net weight value（Signed integers）
20	Tare	**DInt**	Tare value（Signed integers）
24	Flow	**DInt**	Flow value（Signed integers）
28	Current weight	**Float**	Current display weight，floating-point type
32	Gross	**Float**	Gross value，floating-point type
36	Net weight	**Float**	Net weight value，floating-point type
40	Tare	**Float**	Tare value，floating-point type
44	Flow	**Float**	Flow value，floating-point type
48	AD code after filtering	**DWord**	AD code after filtering
52	Sensor voltage data	**DWord**	Signed numbers, integers, four decimal points
56	Relative zero voltage value data	**DWord**	Signed numbers, integers, four decimal points
60	Input state area	**Word**	**D5-D15** Reserved
			D4：Enter 5 state（Expand input **2**）
			D3：Enter 4 state（Expand input **1**）
			D2：Enter 3 state
			D1：Enter 2 state
			D0：Enter 1 state
62	Output state area	**Word**	**D9**−**D15** Reserved
			D8：Output **9** state（Expand input **4**）
			D7：Output **8** state（Expand input **3**）
			D6：Output **7** state（Expand input **2**）
			D5：Output **6** state（Expand input **1**）
			D4：Output **5** state
			D3：Output **4** state
			D2：Output **3** state
			D1：Output **2** state
			D0：Output **1** state
64	Heartbeat communication	**DWord**	After the connection is established, the value of the communication heartbeat of the PN will also be converted between 0 and 1 at the frequency of 1 Hz.

Module2： Calibration parameters (read/write register)

Offsets	Parameter	Data type	Description	
0	Automatic zero	**DWord**	Current sensor voltage	Read the register
4	Gain point **1**	**DWord**	Relative voltage value 1 (loadcell input - zero voltage)	

8	Gain point **2**	**DWord**	Relative voltage value 2 (loadcell input - 1 voltage at reference point)	
12	Gain point **3**	**DWord**	Relative voltage value 3 (loadcell input -2 voltage at reference point)	
16	Gain point **4**	**DWord**	Relative voltage value 4 (loadcell input - 3 voltage at reference point)	
20	Gain point **5**	**DWord**	Relative voltage value 5 (loadcell input - 4 voltage at reference point)	
0	Automatic zero	**DWord**	Current loadcell voltage (write 1 to the communication address to perform automatic acquisition of zero calibration)	Write register (address write value to complete calibration)
4	Gain point **1**	**DWord**	Input gain weight value 1	
8	Gain point **2**	**DWord**	Input gain weight value 2	
12	Gain point **3**	**DWord**	Input gain weight value 3	
16	Gain point **4**	**DWord**	Input gain weight value 4	
20	Gain point **5**	**DWord**	Input gain weight value 5	
24	Function state	**DWord**	**D7-D31** Reserved	
			D6：P_EMPTY_LINE	
			D5：Print	
			D4：Cal zero	
			D3：Gross/Net weight	
			D2：Clear Tare	
			D1：Tare	
			D0：Zero	

Module3：parameters revise（read/ write register）

0	Read out value	**DWord**	The value obtained by writing the address to be read	**read register**
4	Write status	**Word**	Write data return status 0：no errer 1：register address illegal 2：parameter errer	
6	Read status	**Word**	Read data return status 0：no errer 1：register address illegal 2：parameter errer	
0	The request to write value of the modbus address	**DWord**	Address to be written（Note If the address changes, it will not be written）Modifiable Interface modules support MODBUS addresses ranging from 100 to 660.	**write register**
4	Input value	**DWord**	Data to be written（Note only written to the transmitter if the value changes）	
8	The read request of the modbus address	**DWord**	Address to be read（Note cannot read a Dword address write an odd address）Modifiable Interface modules support MODBUS addresses ranging from 0 to 660.	

10.7.2.2 PN non-cyclic parameter address

Parameter Name	Default	Decription
Basic Parameter		
PWR-On Zero	0	Range：**0**~101% (×full scale)；
Remote Zero	1	Range：0-1
Zero Range	20	Range：0-99%
Tare Record	Disable	Range：Enable; Disable
NetSign COR	Disable	Range：Disable；Correct Tare; BackToGross
Preset Tare	0	0-999999
STAB Range	1	0-99d
STAB Timer	1000	1-5000ms
TrZero Range	1	0-99d
TrZero Time	1000	1-5000ms

Digit-Filter	4	0-9
Adv. Filter	0	0-99
AD Sample Rate	200	50；60；100；120；200；240；400；480；800；960（SPS）
Input Range	0-10mv	Range：0-5mV；0-10mV；0-15mV；-5-5mV；-10-10mV；-15-15mV
Weigh and Flow Parameter		
Unit	kg	g,kg,t,lb，kN，N
Decimal	0	Range：0；0.0；0.00；0.000；0.0000
Division	d=1	The instrument indicates the minimum variation value of the value.Range：1，2，5，10，20，50，100，200，500
Full Scale	10000	he full range value of the transmitter is generally taken from the load cell range, and when it exceeds the range, prompt message is given, so as not to damage the load cell by weighing over pressure .
SampleWindow	1000	1000-60000ms
Max Flowrate	0	0-999999
Flowrate Uint	Hour	Range：hour/minute
Input Function Configure		
Input 1 Parameter		
Input 1 Function	0	Range：0-8.（Refer to Section 7.1 for input port configuration）
Input 1 Mode	0	Range：0-1；Low_Level, High_Level.
Input 1 Delay Time	5	Range：0-200ms
Input ports 2-3 have the same parameter definition as input 1		
Expand ports 1-2 and define the same parameter as input 1		
Output Function Configure		
Output 1 Function	0	Range: 0-14 C **NONE,COMP1-8,STABLE, ZERO, NET, PRINTING,-SIGN,COM-Pulse.** (refer to the output port configuration in Section 7.2)
Output 1 Mode	0	Range：0-1；Low_Level, High_Level.
Output ports 2-3 have the same parameter definition as output 1		
Expand ports 1-2 and define the same parameter as output 1		
Comparator parameters		
Comparator 1 parameters		
Comp. 1 Mode	0	Range：0-12，Refer to Section 7.3 for application configuration
Comp. 1 CompValue 1	0	Range： -999999-999999
Comp. 1 CompValue 2	0	Range： -999999-999999
Comp. 1 ON COND.	0	Range： 0-2
Comp. 1 TRUE JudgeT	0	Range： 0-50000
Comp. 1 OFF COND.	0	Range： 0-2
Comp. 1 FALSE HoldT	0	Range：： 0-50000,
Comparator 2-8 has the same parameters as comparator 1		

10.7.3 IO module address of simple version

10.7.3.1 **PN cycle parameter list**

Offsets	Parameters	Data type	Description

Read register（I address）			
0	Display value	**Dword**	current display weight, integer, When positive or negative overflows, 9999999 and -9999999 are displayed.
4	Weight status marker bit	**Word**	**D13-D15** Reserved
			D12：bipolar
			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
6	Error code **2**	**Word**	**D14-D15** Reserved
			D13：The remote tare operation permit switch is not enabled when the tare is operated remotely
			D12：Net weight status does not allow tare
			D11: When tare, the weight is negative
			D10: Load cells overflow when tare
			D09: Negative load cell overflow during tare
			D08: Unstable when tare
			D07：The net weight status is not allowed to be cleared
			D06：The remote reset switch is not turned on during remote reset
			D05：The load cell is overflowing when zero is cleared
			D04：Negative load cell overflow during zero clearance
			D03：Zero clearance is unstable
			D02：Clear out of range
			D01：Unstable when reset on power
			D00：Power on clear zero out of range
8	Sensor voltage data	**DWord**	Signed numbers, integers, four decimal points
12	Read out value	**DWord**	The value obtained by writing the address to be read
16	Write status	**Word**	Write data return status 0：no errer 1：register address illegal 2：parameter errer
18	Heartbeat communication	**Word**	After the connection is established, the value of the communication heartbeat of the PN will also be converted between 0 and 1 at the frequency of 1 Hz
Write register（Q address）			
0	functional operation	**DWord**	**D7**−**D31** Reserved
			D6：P_EMPTY_LINE
			D5：Print
			D4：Cal zero
			D3：Gross/Net weight
			D2：Clear Tare
			D1：Tare

			D0：Zero
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 from 100 to 660.
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）
12	The read request of the modbus address	**DWord**	Read address（Note: Can't read **DWord** address, when write an odd address） This PARA modify connect port module support MODBUS address ranging from 0 to 660 .

10.7.3.2 PN non-cyclic parameter address

Parameter	Default Value	Description
PWR-On Zero	0	Range：**0**~101% (×full scale)；
TrZero Range	**1**	**0-99d**
STAB Range	**1**	**0-99d**
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**	d = 1;Range: **1**,2,**5**,10,**20**,**50**,**100**,**200**,**500**
Full Scale	**10000**	Instrument maximum value, generally take the sensor range Range: **0~999999;** Set the prompt message when the over-range (" data over range "), so as not to overweigh the sensor damage

10.7.4 Device description file GSD

The device description file and connection method of GMT-X1 can be downloaded from the website of Shenzhen General Measure Technology Co., Ltd. (www.gmweighing.com).

10.8 EtherNet-IP Protocol

IP address of controller is set and viewed in parameter item 444X; The MAC address is viewed in item 571x.

10.8.1 IO state

GMT-X1 has two type of EDS file. One is standard version with 100 bytes input and 40 bytes output, another is simplified version with 20 bytes input and 16 bytes output. The master station can read and control the status of the load display through these I/ O.

10.8.2 IO module address of standard version

10.8.2.1 EIP cycle parameter address

Module 1: Weight and status parameters (read register)

Offsets	Parameter	Data type	Description
0	Display weight	**DInt**	The current weight of the display, integral type, When positive or negative overflows, 9999999 and -9999999 are displayed.
2	Weight status	**Word**	**D13-D15** Reserved

	marker bit		**D12**：bipolar，(When bipolar is selected, the flag bit is valid)
			D11：Calculate the weight using the theoretical value (prompt the user when calculating the weight using the theoretical value)
			D10：ADC failure (ADC initialization failure or sampling interruption longer than expected)
			D9：Net weight of the current display, (distinguish which weight is currently displayed)
			D8：Million volt stability, (mark of million volt stability in calibration)
			D7：Negative load cell overflow, lower than the allowable range of load cell voltage
			D6：The load cell is overflowing, beyond the allowable range of load cell voltage
			D5：Weight negative overflow, weight less than "-(maximum range + 9D)"
			D4：The weight is positive overflow, the weight is greater than "maximum range + 9D"
			D3：Overflow state, (weight or load cell abnormality)
			D2：Display weight minus sign, (display weight is a negative number)
			D1：Zero, (weight in the range of 0+/- 1/4 D)
			D0：Stable
3	Error code **1**	**Word**	**D13-D15** Reserved
			D12：Remote calibration is performed when remote calibration is prohibited
			D11：The calibration is in hardware protection
			D10：The previous weight point is not calibrated
			D09：Beyond the minimum resolution (less than 0.1uV per subdivision)
			D08：Weight input exceeds the maximum range
			D07：The weight input cannot be zero
			D06：Weight calibration less than zero or the previous standard point
			D05：Load cell overflow is positive during weight calibration
			D04：Negative load cell overflow during weight calibration
			D03：The weight calibration is not stable
			D02：Load cell overflow is positive during zero calibration
			D01：Negative load cell overflow during zero calibration
			D00：The zero calibration is not stable
4	Error code **2**	**Word**	**D14-D15** Reserved
			D13：The remote tare operation permit switch is not enabled when the tare is operated remotely
			D12：Net weight status does not allow tare
			D11: When tare, the weight is negative
			D10: Load cells overflow when tare
			D09: Negative load cell overflow during tare
			D08: Unstable when tare
			D07：The net weight status is not allowed to be cleared

			D06：The remote reset switch is not turned on during remote reset
			D05：The load cell is overflowing when zero is cleared
			D04：Negative load cell overflow during zero clearance
			D03：Zero clearance is unstable
			D02：Clear out of range
			D01：Unstable when reset on power
			D00：Power on clear zero out of range
5	Process status flag	**Word**	**D13-D15** Reserved
			D11：Current calibration under way
			D10：Voltage calibration under way
			D9：**IO** Testing state
			D8：In printing, (valid when the meter is performing printing operation)
			D7：The comparator 8 reaches, (the comparison condition is valid if the comparator 8 reaches)
			D6：The comparator 7 reaches, (the comparison condition is valid if the comparator 7 reaches)
			D5：The comparator 6 reaches, (the comparison condition is valid if the comparator 6 reaches)
			D4：The comparator 5 reaches, (the comparison condition is valid if the comparator 5 reaches)
			D3：The comparator 4 reaches, (the comparison condition is valid if the comparator 4 reaches)
			D2：The comparator 3 reaches, (the comparison condition is valid if the comparator 3 reaches)
			D1：The comparator 2 reaches, (the comparison condition is valid if the comparator 2 reaches)
			D0：The comparator 1 reaches, (the comparison condition is valid if the comparator 1 reaches)
6	Gross	**DInt**	Gross value（Signed integers）
8	Net weight	**DInt**	Net weight value（Signed integers）
10	Tare	**DInt**	Tare value（Signed integers）
12	Flow	**DInt**	Flow value（Signed integers）
14	Current weight	**Float**	Current display weight，floating-point type
16	Gross	**Float**	Gross value，floating-point type
18	Net weight	**Float**	Net weight value，floating-point type
20	Tare	**Float**	Tare value，floating-point type
22	Flow	**Float**	Flow value，floating-point type
24	AD code after filtering	**DWord**	AD code after filtering
26	Sensor voltage data	**DWord**	Signed numbers, integers, four decimal points
28	Relative zero voltage value	**DWord**	Signed numbers, integers, four decimal points
30	Input state area	**Word**	**D5-D15** Reserved
			D4：Enter 5 state（Expand input **2**）
			D3：Enter 4 state（Expand input **1**）
			D2：Enter 3 state
			D1：Enter 2 state
			D0：Enter 1 state
31	Output state area	**Word**	**D9-D15** Reserved
			D8：Output **9** state（Expand input **4**）

			D7：Output **8** state（Expand input **3**）	
			D6：Output **7** state（Expand input **2**）	
			D5：Output **6** state（Expand input **1**）	
			D4：Output **5** state	
			D3：Output **4** state	
			D2：Output **3** state	
			D1：Output **2** state	
			D0：Output **1** state	
32	Heartbeat communication	**DWord**	The Communication indicator light defines which network. The communication light blinks at a frequency of 1 Hz, and the communication heartbeat switches between 0 and 1 at a frequency of 1 Hz.	
34	Automatic zero	**DWord**	Current sensor voltage	
36	Gain point **1**	**DWord**	Relative voltage value 1 (loadcell input - zero voltage)	
38	Gain point **2**	**DWord**	Relative voltage value 2 (loadcell input - 1 voltage at reference point)	
40	Gain point **3**	**DWord**	Relative voltage value 3 (loadcell input -2 voltage at reference point)	
42	Gain point **4**	**DWord**	Relative voltage value 4 (loadcell input - 3 voltage at reference point)	
44	Gain point **5**	**DWord**	Relative voltage value 5 (loadcell input - 4 voltage at reference point)	
46	Readout value	**DWord**	The value obtained by writing the address to be read	
48	Write status	**Word**	Write data return status 0: no error 1: register address illegal 2: parameter error	
49	Read status	**Word**	Read data return status 0: no error 1: register address illegal 2: parameter error	
0	Automatic zero	**DWord**	Current sensor voltage (write 1 to the communication address to perform automatic acquisition of zero calibration)	The address is written to the value to complete the calibration
2	Gain point **1**	**DWord**	Input gain weight value 1	
4	Gain point **2**	**DWord**	Input gain weight value 2	
6	Gain point **3**	**DWord**	Input gain weight value 3	
8	Gain point **4**	**DWord**	Input gain weight value 4	
10	Gain point **5**	**DWord**	Input gain weight value 5	
12	Function state	**DWord**	**D7-D31** Reserved	
			D6：P_EMPTY_LINE	
			D5：Print	
			D4：Cal zero	
			D3：Gross/Net weight	
			D2：Clear Tare	
			D1：Tare	
			D0：Zero	
14	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 from 100 to 660	
16	Input value	**DWord**	Input value to the request to write value of the modbus address（Note：only when value change will write in transmitter）	
18	The read request of the modbus address	**DWord**	Read address（Note: Can't read **DWord** address, when write an odd address）	

			This PARA modify connect port module support MOD-BUS address ranging from 0 to 660

10.8.2.2 EIP non-cyclic parameter address

Parameter Name	Default	Decription
Basic Parameter		
PWR-On Zero	0	Range：**0**~101% (×full scale)；
Remote Zero	1	Range：0-1
Zero Range	20	Range：0-99%
Tare Record	Disable	Range：Enable; Disable
NetSign COR	Disable	Range：Disable；Correct Tare; BackToGross
Preset Tare	0	0-999999
STAB Range	1	0-99d
STAB Timer	1000	1-5000ms
TrZero Range	1	0-99d
TrZero Time	1000	1-5000ms
Digit-Filter	4	0-9
Adv. Filter	0	0-99
AD Sample Rate	200	50；60；100；120；200；240；400；480；800；960（SPS）
Input Range	0-10mv	Range：0-5mV；0-10mV；0-15mV；-5-5mV；-10-10mV；-15-15mV
Unit	kg	g,kg,t,lb，kN，N
Decimal	0	Range：0；0.0；0.00；0.000；0.0000
Division	d=1	The instrument indicates the minimum variation value of the value.Range：1，2，5，10，20，50，100，200，500
Full Scale	10000	he full range value of the transmitter is generally taken from the load cell range, and when it exceeds the range, prompt message is given, so as not to damage the load cell by weighing over pressure .
SampleWindow	1000	1000-60000ms
Max Flowrate	0	0-999999
Flowrate Uint	Hour	Range：hour/minute

10.8.3 IO module address of simple version

10.8.3.1 **EIP cycle parameter list**

Offsets	Parameter	Data type	Description
0	Display weight	**DWord**	The current weight of the display, integral type, When positive or negative overflows, 9999999 and -9999999 are displayed.
2	Weight status signal bit	**Word**	**D13-D15** Reserved **D12**：bipolar，(When bipolar is selected, the flag bit is valid) **D11**：Calculate the weight using the theoretical value (prompt the user when calculating the weight using the theoretical value) **D10**：ADC failure (ADC initialization failure or sampling interruption longer than expected) **D9**：Net weight of the current display, (distinguish which weight is currently displayed) **D8**：Million volt stability, (mark of million volt stability in calibration) **D7**：Negative load cell overflow, lower than the allowable range of load cell voltage

			D6：The load cell is overflowing, beyond the allowable range of load cell voltage **D5**：Weight negative overflow, weight less than "-(maximum range + 9D)" **D4**：The weight is positive overflow, the weight is greater than "maximum range + 9D" **D3**：Overflow state, (weight or load cell abnormality) **D2**：Display weight minus sign, (display weight is a negative number) **D0**：Stable
3	Error code **2**	**Word**	**D14-D15** Reserved **D13**：The remote tare operation permit switch is not enabled when the tare is operated remotely **D12**：Remote calibration is performed when remote calibration is prohibited **D11**: The calibration is in hardware protection **D10**: The previous weight point is not calibrated **D09**: Beyond the minimum resolution (less than 0.1uV per subdivision) **D08**: Weight input exceeds the maximum range **D07**：The weight input cannot be zero **D06**：Weight calibration less than zero or the previous standard point **D05**：Load cell overflow is positive during weight calibration **D04**：Negative load cell overflow during weight calibration **D03**：The weight calibration is not stable **D02**：Load cell overflow is positive during zero calibration **D01**：Negative load cell overflow during zero calibration **D00**：The zero calibration is not stable
4	Sensor voltage data	**DWord**	Signed numbers, integers, four decimal points
6	Readout value	**DWord**	The master station requests the data returned by the meter, the value obtained according to the "request read address".
8	Write status	**Word**	Write data return status 0: no error 1: register address illegal 2: parameter error
9	Heartbeat communication	**Word**	After the connection is established, the value of the communication heartbeat of the PN will also be converted between 0 and 1 at the frequency of 1 Hz
0	Function state	**DWord**	**D7-D31** Reserved **D6**：P_EMPTY_LINE **D5**：Print **D4**：Cal zero **D3**：Gross/Net weight **D2**：Clear Tare **D1**：Tare **D0**：Zero
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 from 100 to 660
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）
6	The read request of the modbus address	**DWord**	Read address（Note: Can't read DWord address, when write an odd address） This parameter modify connect port module support

			MODBUS address ranging from 0 to 660

10.8.3.2 **EIP acyclic parameter list**

Refer to the section on non-circular parameter addresses in the simplified version of parameter addresses in PN Communication, Section 10.7.3.2.

10.8.4Device description file EDS

The device description file and connection method of GMT-X1 can be downloaded from the website of Shenzhen General Measure Technology Co., Ltd. (www.gmweighing.com)..

10.**9** CAN Protocol

1）Support **100K, 125K**, **250K, 500K, 1000K** bus speed. It can be set in the 49xxCAN parameter of the communication parameters.
2）With 11 bit identifier (ID) is the standard frame. The frame format is detailed in the following table:

10.9.1 Standard frame active report data format

11bits frame ID	**Bit4-bit10**	**address**	**Local device address(1~127)**
	bit3	**Frame function**	**10：active report weight；11 active report voltage**
	bit2		
	bit1	**Reserved（fix 0）**	
	bit0		
Data format			
First data	**Byte0**	**Reserved**	**fix 0**
Second data	**Byte1**		
Third data	**Byte2**		
Fourth data data	**Byte3**	**Channel state**	**Below state valid is 1** **bit7：ADC error** **bit6：Fixd 0** **bit5：load cell OFL** **bit4：weight OFL** **bit3：theory valid** **bit2：display NW** **bit1：stable** **bit0：zero**
Fifth to eighth data	**Byte4**	**Weight data**	**32-bit integer with a signed number, with the highest digit in the data. When positive or negative overflow occurs, the weight data is displayed as 9999999 or -99999999**
	Byte5		
	Byte6		
	Byte7		

10.9.2 Standard frame read data format

11bits frame ID	**Bit4-bit10**	**address**	**Target device address**
	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 0	**Byte0**	**read address**	
	Byte1		
Word 1	**Byte2**	**0**	
	Byte3		

Word 2	**Byte4**	**0**
	Byte5	
Word 3	**Byte6**	0
	Byte7	

Read back to result data format

11bits frame ID	**Bit4-bit10**	**address**	**Local device address(1~127)**
	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 0	**Byte0**	**Back to data**	**read address**
	Byte1		
Word 1	**Byte2**		**Operation result： 0 OK，1 address error，2 data unconscionable**
	Byte3		
Word 2	**Byte4**		**Read Dword Hi word AB part**
	Byte5		
Word 3	**Byte6**		**Read Dword Lo word CD part or read word**
	Byte7		

10.9.3 Standard frame write in data format

11bits frame ID	**Bit4-bit10**	**address**	**Target device address**
	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			
Word 0	**Byte7**	**write in parameter content**	**write in address**
	Byte6		
Word 1	**Byte5**		**0**
	Byte4		
Word 2	**Byte3**		**write in Dword Hi word AB**
	Byte2		
Word 3	**Byte1**		**write in Dword Lo-word CD or word content**
	Byte0		

Write in back to result data format

11bits frame ID	**Bit4-bit10**	**address**	**local device address (1~127)**
	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 0	**Byte7**	**Back to data**	**write in address**
	Byte6		
Word 1	**Byte5**		**Operation result： 0 OK，1 address error，2 data unconscionable**
	Byte4		
Word 2	**Byte3**		**write in Dword Hi word AB**

	Byte2		
Word 3	**Byte1**		**write in Dword Lo-word CD or word content**
	Byte0		

10.10 DP communication

The GMT-X1 monitor can be equipped with an optional PROFIBUS-DP bus connection port, which can be used as a standard PROFIBUS-DP slave station to connect to the master station on the bus. Provide 8AO+10AI, and the main station can read and control the status of the weighing display through these I/O.

10.10.1 Bus settings

When selecting Profibus DP communication during ordering, enter the 6xxx Bus Cfg menu and set the following parameters.

61x DP Parameter	Initial value	Description
611x Slave ID	**01**	Range：**01-99**
612x Write SW	Disable	Range: Disable/Enable; Enable: Every time the instrument establishes communication with the master station, the parameters set in the "Device Specific Parameters" of the slave station equipment configuration are automatically written to the instrument. Disable : Every time the instrument establishes communication with the master station, it does not process the parameters set in the "device specific parameters" of the slave station equipment configuration.

10.10.2 Simplified version of loop parameter address

Output from the instrument to the main station (10AI) (write register, Q address)			
Offset	**Parameter Name**	**Data Type**	**Parameter Description**
0	Current displayed weight	**DWord**	The current weight of the display, integral type.
4	Weight status indicator	**Word**	**D13-D15** Reserved **D12**：bipolar,(When bipolar is selected, the flag bit is valid) **D11**：Calculate the weight using the theoretical value (prompt the user when calculating the weight using the theoretical value) **D10**：ADC failure (ADC initialization failure or sampling interruption longer than expected) **D9**：Net weight of the current display, (distinguish which weight is currently displayed) **D8**：Million volt stability, (mark of million volt stability in calibration) **D7**：Negative load cell overflow, lower than the allowable range of load cell voltage **D6**：The load cell is overflowing, beyond the allowable range of load cell voltage **D5**：Weight negative overflow, weight less than "-(maximum range + 9D)" **D4**：The weight is positive overflow, the weight is greater than "maximum range + 9D" **D3**：Overflow state, (weight or load cell abnormality) **D2**：Display weight minus sign, (display weight is a negative number) **D1**：Zero, (weight in the range of 0+/- 1/4 D)

			D0：Stable
6	Error code **2**	**Word**	**D14-D15** Reserved **D13**：The remote tare operation permit switch is not enabled when the tare is operated remotely **D12**：Net weight status does not allow tare **D11**: When tare, the weight is negative **D10**: When tare, the weight is negative **D09**: Load cells overflow when tare **D08**: Unstable when tare **D07**：The net weight status is not allowed to be cleared **D06**：The remote reset switch is not turned on during remote reset **D05**：The load cell is overflowing when zero is cleared **D04**：Negative overflow of loadcell during zeroing **D03**：Zero clearance is unstable **D02**：Zeroing out of range **D01**：Unstable when reset on power **D00**：Power on clear zero out of range
8	Sensor voltage data	**DWord**	Signed numbers, integers, four decimal points
12	Read out value	**DWord**	The master station requests the data returned by the meter, the value obtained according to the "request read address".
16	Write status	**Word**	Write data return status 0：no errer 1：register address illegal 2：parameter errer
18	Heartbeat communication	**Word**	After the connection is established, the value of the communication heartbeat of the PN will also be converted between 0 and 1 at the frequency of 1 Hz.
Output from the main station to the instrument (8AO)			
0	Function Operate	**DWord**	**D7**-**D31** Reserve **D6**：P_EMPTY_LINE **D5**：Print **D4**：CAL ZERO **D3**：GROSS/NET **D2**：Clear Tare **D1**：TARE **D0**：ZERO
4	The request to write value of the modbus address	**DWord**	Write value address. (Note: that a change in address does not write)This parameter modify connect port module support MODBUS address range from 100 to 660
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）
12	The read request of the modbus address	**DWord**	Read address（Note: Can't read **DWord** address, when write an odd address） This parameter modify connect port module support MODBUS address ranging from 0 to 660

10.10.3 Non cyclic parameter

Refer to section 10.7.3.2 of PN non-cyclic parameter in the simplified version.

10.10.4 **Device description file GSD**

The device description file and connection method of GMT-X1 can be downloaded from the website of Shenzhen General Measure Technology Co., Ltd. (www.gmweighing.com).

10.11 CCLINK IE 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 instrument IP address can be set and viewed in the network port parameter 444x; Check the MAC address in item 571x of the system maintenance parameters.After establishing a successful engineering connection, parameters can be configured according to the following parameter addresses.

This instrument occupies one link station, and each link point can reach a maximum of 4K words. It can be applied to small-scale devices without the need for high-speed control. CC Link IE loop communication is implemented by software, and the communication speed also reaches 100Mbps.

10.11.1 Cycle parameter address

Offsets	Parameter	Data type	Specification
Weight and state parameters（read register,I address）			
RWr0-RWr1	Display Current Weight	**DWord**	Currently displayed weight，When positive or negative overflows, 9999999 and -9999999 are displayed. Select whether to display floating point numbers or integers from the 577x weight display type in the system parameters.
RWr2- RWr3	Weight state marker bit	**DWord**	**D31：** 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）
			D13~D30： Reserve
			D12： bipolar,(When bipolar is selected, the flag bit is valid)
			D11： Use theory value calculate weight,(Use theory value calculate weight prompt user)
			D10： ADC failure (ADC initialization failure or sampling interruption longer than expected)
			D9： Net weight of the current display, ((Distinguish the stable millivolt value of the currently displayed weight, which is a marker for judging the stability of millivolt values during calibration))
			D8： Million volt stability, (mark of million volt stability in calibration)
			D7： Negative load cell overflow, lower than the allowable range of load cell voltage
			D6： The load cell is overflowing, beyond the allowable range of load cell voltage
			D5： Weight negative overflow, weight less than "-(maximum range + 9D)"
			D4： The weight is positive overflow, the weight is greater than "maximum range + 9D"
			D3： Overflow state, (weight or load cell abnormality)
			D2： Display weight minus sign, (display weight is a negative number)
			D1： Zero, (weight in the range of 0+/- 1/4 D)
			D0： Stable
RWr4-RWr5	Error code **2**	**DWord**	D31：Write status (write data return status 0: no error 1: illegal register address/write parameter error)
			D14-D30 Reserve

			D13：The remote tare operation permit switch is not enabled when the tare is operated remotely
			D12：Net weight status does not allow tare
			D11: When tare, the weight is negative
			D10: Load cells overflow when tare
			D9: Negative load cell overflow during tare
			D8: Unstable when tare
			D7：The net weight status is not allowed to be cleared
			D6：The remote reset switch is not turned on during remote reset
			D5：The load cell is overflowing when zero is cleared
			D4：Negative load cell overflow during zero clearance
			D3：Zero clearance is unstable
			D2：Clear out of range
			D1：Unstable when reset on power
			D0：Power on clear zero out of range
RWr6-RWr7	Loadcell voltage data	**DWord**	Signed numbers, integers, four decimal points
RWr8-RWr9	Read out value	**DWord**	The master station requests the data returned by the meter, the value obtained according to the "request read address".
Functional operation parameters (write register, Q address)			
RY0	Function operation	**DWord**	**D0**：Zero
RY1			**D1**：Tare
RY2			**D2**：Clear Tare
RY3			**D3**：Gross/Net weight
RY4			**D4**：Cal zero
RY5			**D5**：Print
RY6			**D6**：P_EMPTY_LINE
RY7~ RY31			**D7~D31**：Reserved
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 from 100 to 660
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 PARA modify connect port module support MODBUS address ranging from 0 to 660

10.11.2 Non cyclic parameter

Refer to section 10.7.3.2 of PN non-cyclic parameter in the simplified version.

10.11.3 Device description file CSP

The device description file and connection method of GMT-X1 can be downloaded from the website of Shenzhen General Measure Technology Co., Ltd. (www.gmweighing.com).

10.12 EtherCAT communication

GMT-X1 has two bus connection ports: NET1 and NET2 with **NET2** serving as the

entry when **EtherCAT** is connected. ny 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.

10.12.1 Bus Cfg

When selecting EtherCAT communication during ordering, enter the 6xxx bus settings menu and set the following parameters.

62xEtherCAT	Initial value	Specification
621xAlias	**01**	Range：**0-65535**
622x Write SW	Disable	Range：Disable/Enable;Non cyclic parameters can only be written after activation.

10.12.2 **EtherCAT cycle parameter list**

GMT-X1 EtherCAT communication provides multi byte IO, divided into two modules for output. The main station can read and control the status of the weighing display through these I/O. Provide 16 byte input and 16 byte output.

Offset	Parameter	Data	Description
Weight, millivolts, and status parameters (read-only, I address)			
0	Current Weight	**REAL**	The current displayed weight shows 9999999 or -99999999 when positive or negative overflow occurs. Select whether to display floating-point or integer through menu 577x.
4	Weight status marker bit	**DINT**	**D31：** 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）
			D13~D30： Reserve
			D12： bipolar,(When bipolar is selected, the flag bit is valid)
			D11： Use theory value calculate weight,(Use theory value calculate weight prompt user)
			D10： ADC failure (ADC initialization failure or sampling interruption longer than expected)
			D9： Net weight of the current display, ((Distinguish the stable millivolt value of the currently displayed weight, which is a marker for judging the stability of millivolt values during calibration))
			D8： Million volt stability, (mark of million volt stability in calibration)
			D7： Negative load cell overflow, lower than the allowable range of load cell voltage
			D6： The load cell is overflowing, beyond the allowable range of load cell voltage
			D5： Weight negative overflow, weight less than "-(maximum range + 9D)"
			D4： The weight is positive overflow, the weight is greater than "maximum range + 9D"
			D3： Overflow state, (weight or load cell abnormality)
			D2： Display weight minus sign, (display weight is a negative number)
			D1： Zero, (weight in the range of 0+/- 1/4 D)
			D0： Stable

8	Millivolts of loadcell	**REAL**	Read absolute millivolts
12	Read out value	**DINT**	The master station requests the data returned by the meter, the value obtained according to the "request read address".
Function operation (write register, Q address)			
0	Function Operation	**DWord**	**D0**：Zero **D1**：Tare **D2**：Clear Tare **D3**：Gross/Net weight **D4**：Cal zero **D5**：Print **D6**：P_EMPTY_LINE **D7-D31**：Reserved
4	The request to write value of the modbus address	**DWord**	Write value address. (Note: that a change in address does not write)This parameter modify connect port module support MODBUS address range from 100 to 660,refer to 10.1.3Mobus communication data sheet .
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）
12	The read request of the modbus address	**DWord**	Read address（Note: Can't read **DWord** address,when write an odd address） This parameter modify connect port module support MODBUS address ranging from 0 to 660, refer to 10.1.3Mobus communication data sheet .

10.12.3 Non cyclic parameter

Refer to section 10.7.3.2 of PN acyclic parameter list in the simplified version.

10.12.4 Device description file ESI

The device description file for GMT-X1 and the specific steps for using PLC and Twincat can be downloaded from the website of Shenzhen General Measure Technology Co., Ltd. (www.gmweighing.com).

11. DIMENSION