GENERAL MEASURE

Model no.: GMT-P1

—PN/EIP

User's Manual

110611010012
V30.02.00

Our company reserved the right to update user's manual without additional notice to customers by reason of update, so please visit our website or contact with our service person to get update information.

Website: http://www.gmweighing.com

Product Performance Standards: GB/T 7724—2008

CONTENTS

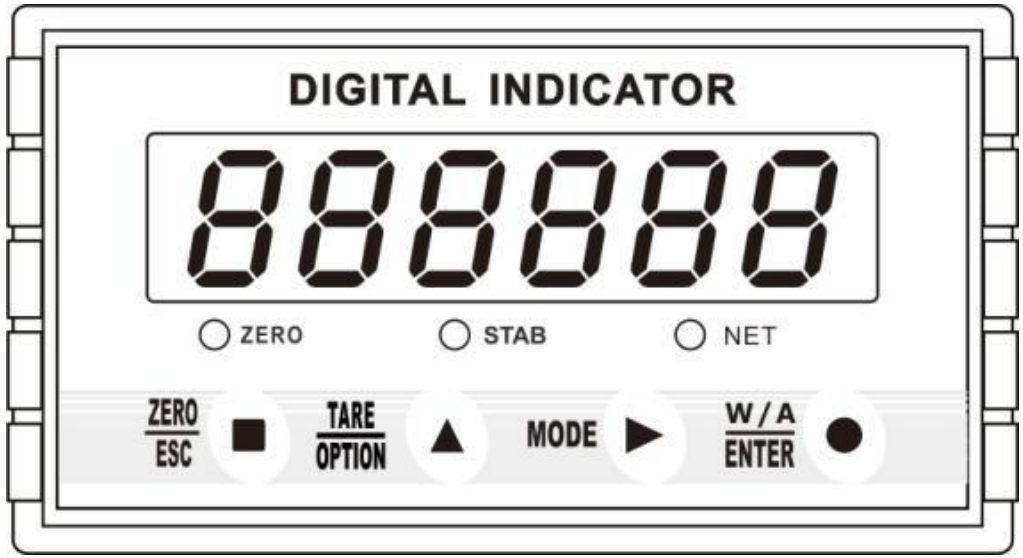
1 General Description

GMT-P1 digital indicator is specially designed for weight transmitting in industrial fields. Support PROFINET and Ethernet IP, GMT-P1 digital indicator is a small weight display which is specially designed and produced for the occasion of weight transmit industrial. The indicator has the features of compact size, stable performance, simple operation. Can be widely used in: cement mixing and asphalt mixture equipment, metallurgical blast furnace, converter and chemical industry, feed weight control and other occasions.

1.1 Functions and Characteristics

- Small volume, unique design, easy operation
- Applicable to all kinds of resistance strain gauge bridge load cell
- Front panel numerical calibration
- Multilevel of digital filter
- Automatic zero -tracking
- Automatically zero when powered on
- **PROFINET** fieldbus interface
- Support **Ethernet IP** communication, can access **Ethernet IP** network
- Weight display can be remotely calibrated (remote calibration ON/OFF turned on)

1.2 Front Panel



Main Display: 6 digits, for displaying weight and the information of parameters.
Status Indicator Lamp:

- **ZERO:** Light on when present weight is within 0±1/4d. the state of I10.
- **STAB:** Light on when changes of weight values are within the range of motion detecting during motion detecting time.
- **NET:** Light on when indicator is in net weight status.

Keypad:

: Zero/Esc, exit from current operation or go previous. Long press the ZERO button to calibrate the ZERO point function. The calibration range of the ZERO point in the main interface is limited by the ZERO clearing range, and cannot exceed the zeroing range, but it is not limited by

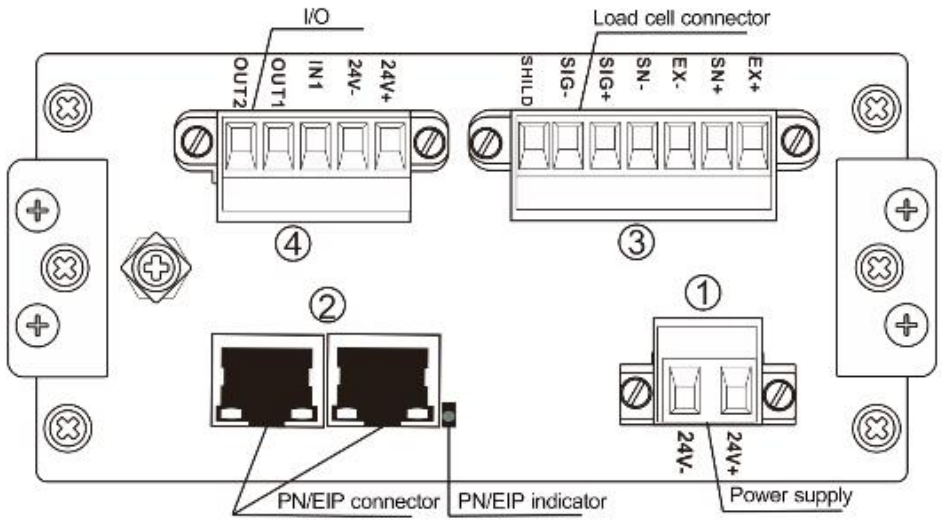
: Scroll optional values of parameter and to make flashing digit increase 1 while data inputting. Long press Tare key will proceed data transmission, and the light will be flicker, and update the F1.8 parameters

: Function selecting key, make flashing position move to the right digit when data inputting.

: Confirming Key. Confirm setting parameters or calibration and input data.

Note: Under the status of gross weight, user could remove tare by pressing OPTION key, and if press Esc key in net weight mode, it will add tare weight, while it is zeroing under the status of net weight. It will show net weight value after tare, meanwhile the NET light is on.

1.3 Rear Panel



PN/EIP indicator, light on when bus communication

1.4 Technical Specifications

1.4.1 Common:

Power supply: **DC24V±5%**
Working temperature: **-10～40**℃
Max humidity: **90%R.H without dew**

Power consumption: **About 10W**
Dimension: **105×89×57（mm）**

1.4.2 Analog:

Load cell power: **DC5V　200mA（MAX）**
Input impedance: **10MΩ**
Zero steady range: **0.00～12mV(Load cell 3mV/V)**
Input sensitivity: **0.01uV/d**
Input range: **0.00～15mV(Load cell 3mV/V)**
Transfer mode: **Sigma - Delta**
A/D conversion speed: **30, 60, 120, 240, 480, 960 times/sec**
Non-linearity: **0.01% F.S**
Gain drift: **10PPM/**℃
Display Precision: **1,000,000d**

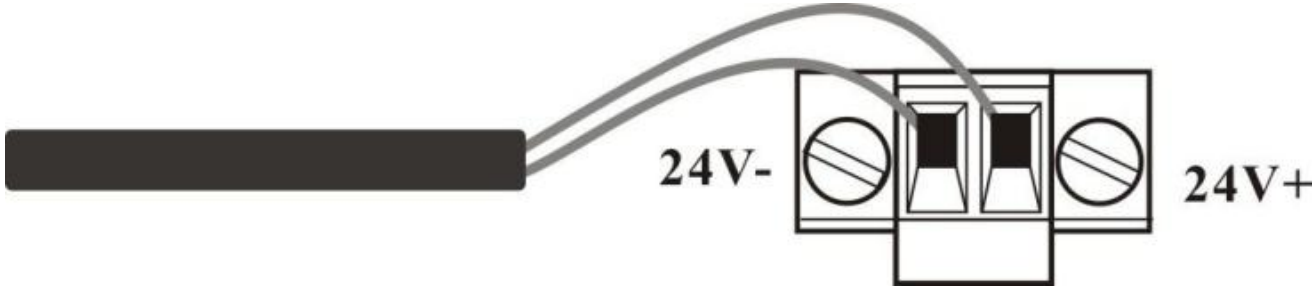
1.4.3 Digital:

Weight display: **6 digits red high-brightness LED**
Minus display: **"-"**
Overload display: **"OFL"**
Decimal point: **5 kinds (optional)**
Function keys: **4 keys soniferous keypad**

2 Installation and Wiring

2.1 Connection of Power Supply

GMT-P1 digital indicator connects DC24V power supply as follows:



Power supply connection

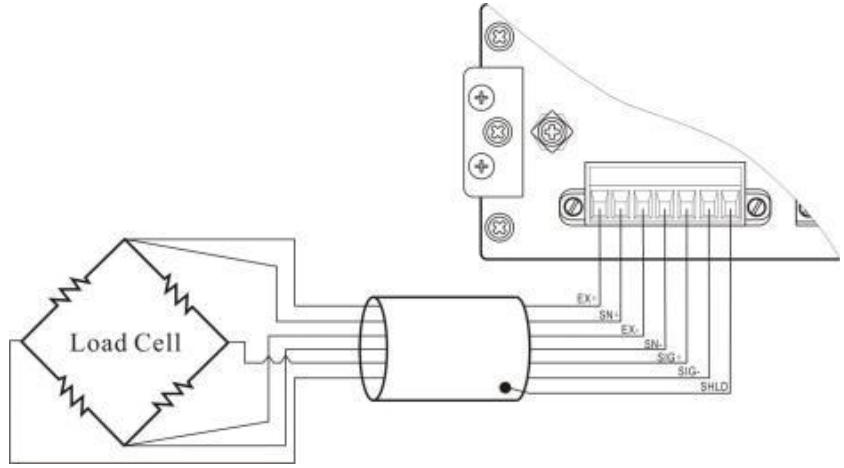
2.2 Connection of Load Cell

GMT-P1 digital indicator connects bridge type resistance strain gauge load cells by 6 wires or 4 wires as follows. When you use 4-wired load cells, you must bridge the SN+ with EX+ and bridge the SN- with EX-.
The signal definition of each port of the load cell connector is as follows:

EX+: Excitation+ **EX-**: Excitation- **SN+**: Sense+ **SN-**: Sense- **SIG+**: Signal+ **SIG-**: Signal-

6 wires	**EX+**	**SN+**	**EX-**	**SN-**	**SIG+**	**SIG-**	**Shield**
4 wires	**EX+**		**EX-**		**SIG+**	**SIG-**	**Shield**

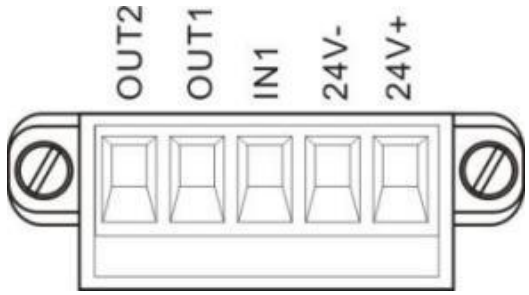
2.2.1 6 wires connection



Note:

1. As load cell output sensitive analog signal, please use shield cable to separate with other cables, especially AC power.
2. 4 wires connection is suitable for short distance and stable temperature or low precision field, otherwise use 6 wires connection.
3. For more load cells parallel connection, their sensitivity (mV/V) should be same.

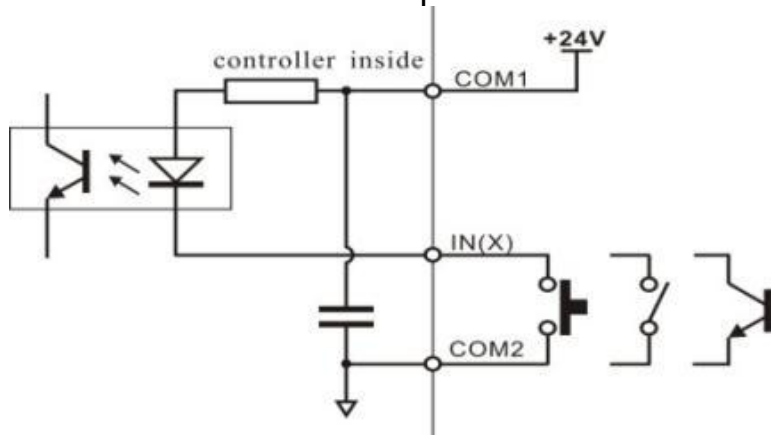
2.3 I/O terminals



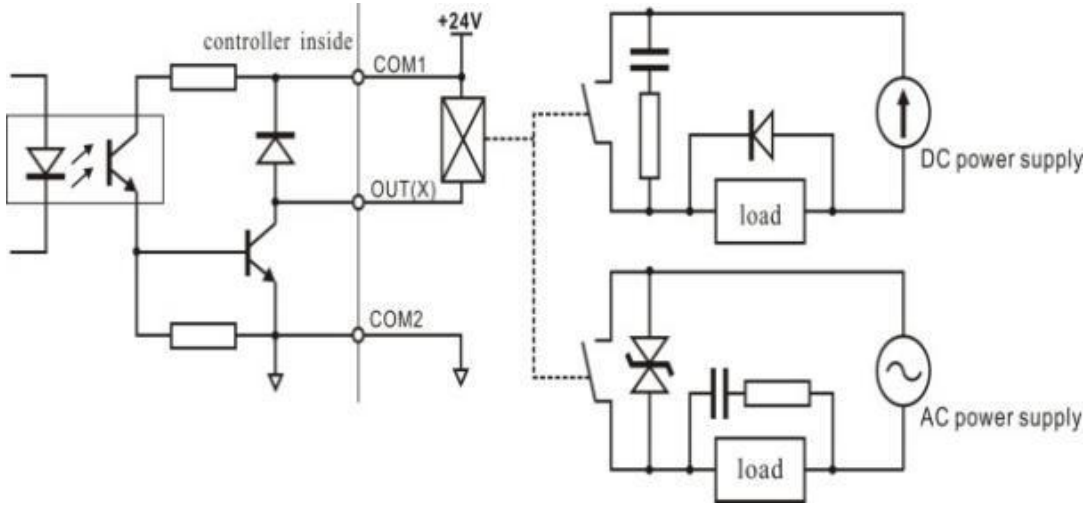
I/O tolerant definition as follows:

Output		Input	
OUT1	Stable	IN1	Reset all
OUT2	OFL		

Indicator input terminal connection:

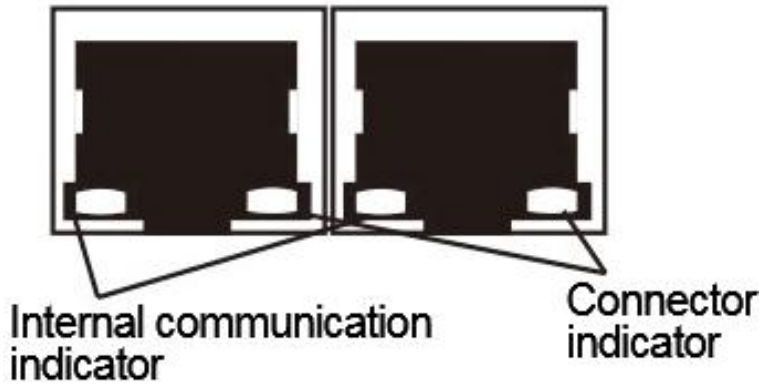


Indicator input terminal connection:



2.4 Profinet/Ethernet IP connection

GMT-P1 supports **PROFINET** and **Ethernet IP** communication, and provides two Ethernet ports. With the choice of two network ports, the network port has built-in switch, which is used to realize the cascading between multiple devices.



Internal communication indicator: Hardware connection is normal, the internal communication indicator is ON.

Connector indicator: cable connection is normal, connection light is flashing

3 Calibration

3.1 Instruction

（1）Calibration procedure must be executed when a GMT-P1 indicator is put in use at the first time, the preset parameters may no longer meet the user's needs, and any part of the weighing system was changed. Position of decimal point, minimum division, maximum capacity, zero, and gain can be set and confirmed through calibration.

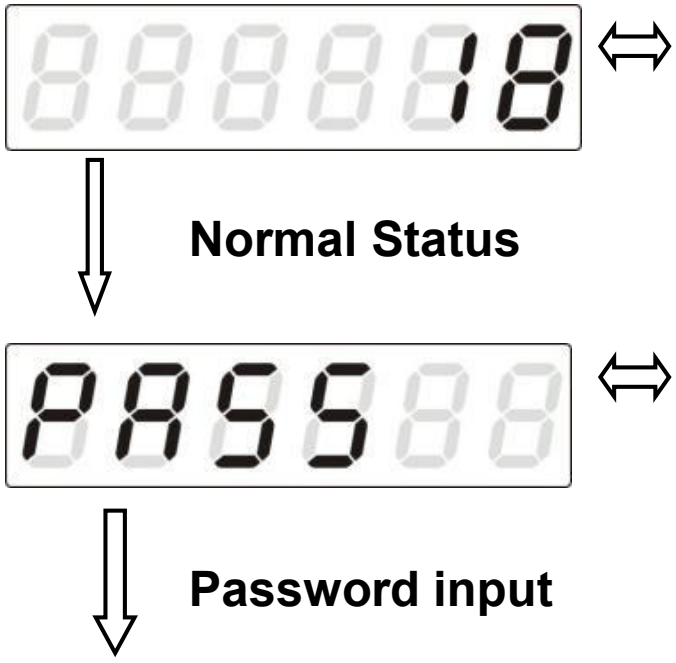
（2）If you want to set only one parameter, please press W/A ENTER ● to save parameter's value and then press ZERO ESC ■ to exit.

（3）Please see section **3.7** for parameters' instruction.

（4）Please record each value in the blank table in section 3.4 during calibration for the emergency use in future.

（5）See chapter **9** for error alarm message that may be displayed during calibration.

3.2 Flow Chart of Calibration



1. Under this status, press MODE (twice), indicator will display **CAL**, then press W/A ENTER to enter password input.

2. After password is input, the indicator will display **CALON** for one second, then go to next step.

Decimal point

3. Press TARE/OPTION ▲ to select a desired value for decimal point among **0, 0.0, 0.00, 0.000** and **0.0000, and then press** W/A/ENTER ● to save it and enter next step.
If there's no need to change the value, press W/A/ENTER ● directly to enter next step.

Min. divistion

4. Press TARE/OPTION ▲ to select a desired value for min. division among **1**,**2**, **5**,**10**,**20** and **50**, and then to save it and enter next step.
If there's no need to change the Min,division, then press W/A/ENTER ● directly to enter next step.

Max. capacity

5. Input max. capacity(≤min. division×**1000000**), press W/A/ENTER ● to save it and enter Millivolt value display interface.
If there's no need to change the max. capacity value, then press W/A/ENTER ● directly to enter Millivolt display interface.

⇔

6. Under this status, press W/A ENTER ● to enter zero calibration.
Display value near the output value in millivolt between **SIG+/SIG-** of load cell.
See section **3.3** for details about this function.

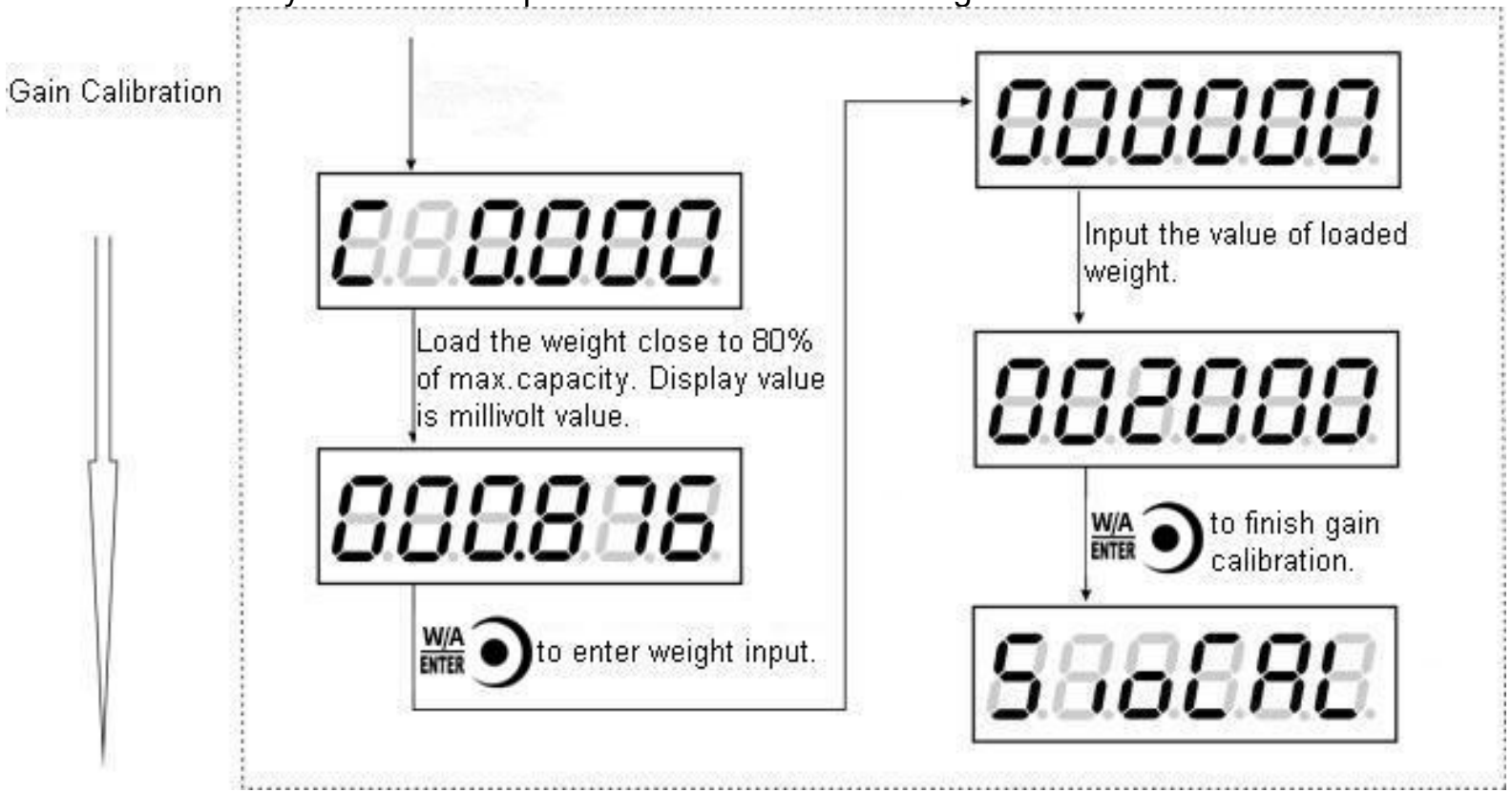
Millivolt value display

⇔

7.Unloaded scale first, when **STAB** lamp is on, press W/A ENTER ● to finish zero calibration.
If there's no need to calibrate zero, press ZERO ESC ■ directly to enter gain calibration.

Zero calibration

8. The process of gain calibration is as follows. If there's no need to do gain calibration, press ZERO ESC directly to enter serial ports calibration switch setting.



Serial ports calibration switch

9. Press W/A ENTER ● to enter remote calibration ON/OFF, press TARE OPTION ▲ to choose the switch position, press W/A ENTER ● to set password。If don't need to set switch position, then press ZERO ESC ■ to enter password setting.

Password setting

10. See section **7.2** for reference to set password.
If there's no need to set password, press ZERO ESC ■ directly to go back to normal status.

Normal status

3.3 Millivolt Value Display

This function is mainly used for system test, position-error test for weighing mechanism and linearity test for load cell.

1. System Test

(1) If display data changes with loaded weight changes, it shows that connection of load cell is correct and weighing mechanism works well.

(2)If display value is OFL (or –OFL), it means that loaded weight on load cells is too large (or too small). Please unload the weight (or load more), if display value is still OFL (or –OFL), the possible reasons are as follows:

a. There is something wrong with weighing mechanism, please check and clear.

b. The connection of load cell is incorrect, please check and clear.

c. Load cells may be damaged, please replace.

2. Position-error Test for Weighing Mechanism

Load a same weight on each corner of weighing mechanism and record displayed millivolt value respectively. If differences among these values are obvious, please adjust weighing mechanism.

3. Linearity Test for Load Cell

Load same weight for several times, and record displayed value every time. If one or two values are obviously much larger or smaller than any others, it means that the linearity of load cell is bad.

***NOTE: Press** 

to zero every time before weight is loaded.

3.4 Calibration with Weights

In Chapter 3.2, steps 7 and 8 in the calibration flow chart are operation instructions of calibration zero point and calibration gain with weights

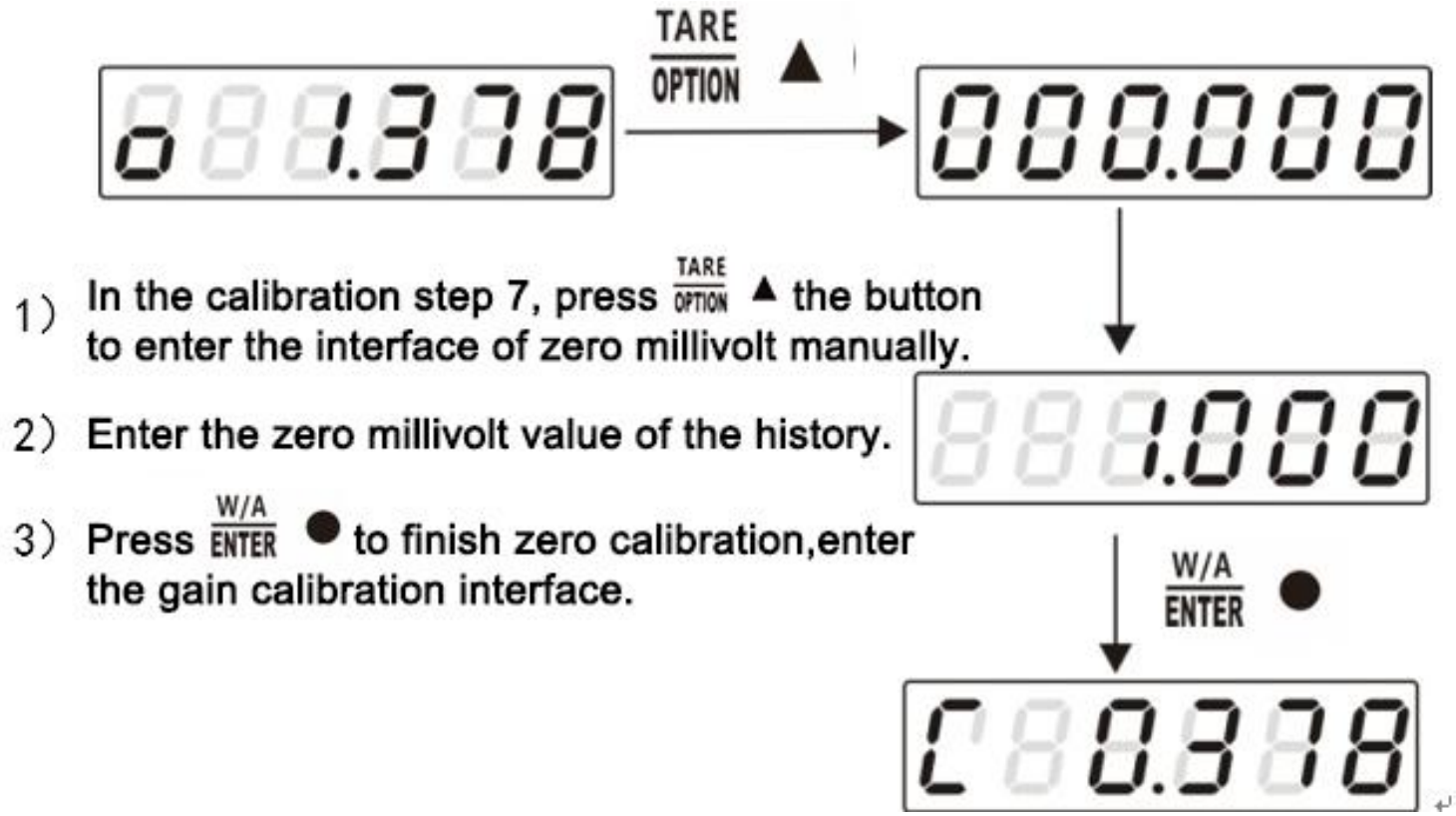
During calibration with weight， please record the zero millivolt value, gain millivolt value and the loaded weight value in the blank table below. If it is not convenient to load a weight to calibrate, these values can be used for calibration without weights.

	Zero millivolt value(mV)	Gain millivolt value(mV)	Loaded Weight	Date	Remarks
1					
2					
3					
4					
5					

3.5 No weight calibration

3.5.1 No weight zero Calibration

When the mechanism is calibrated with weights, the millivolt value corresponding to the empty balance should be recorded. Zero calibration is accomplished by manually entering historical values.



3.5.2 No weight gain Calibration

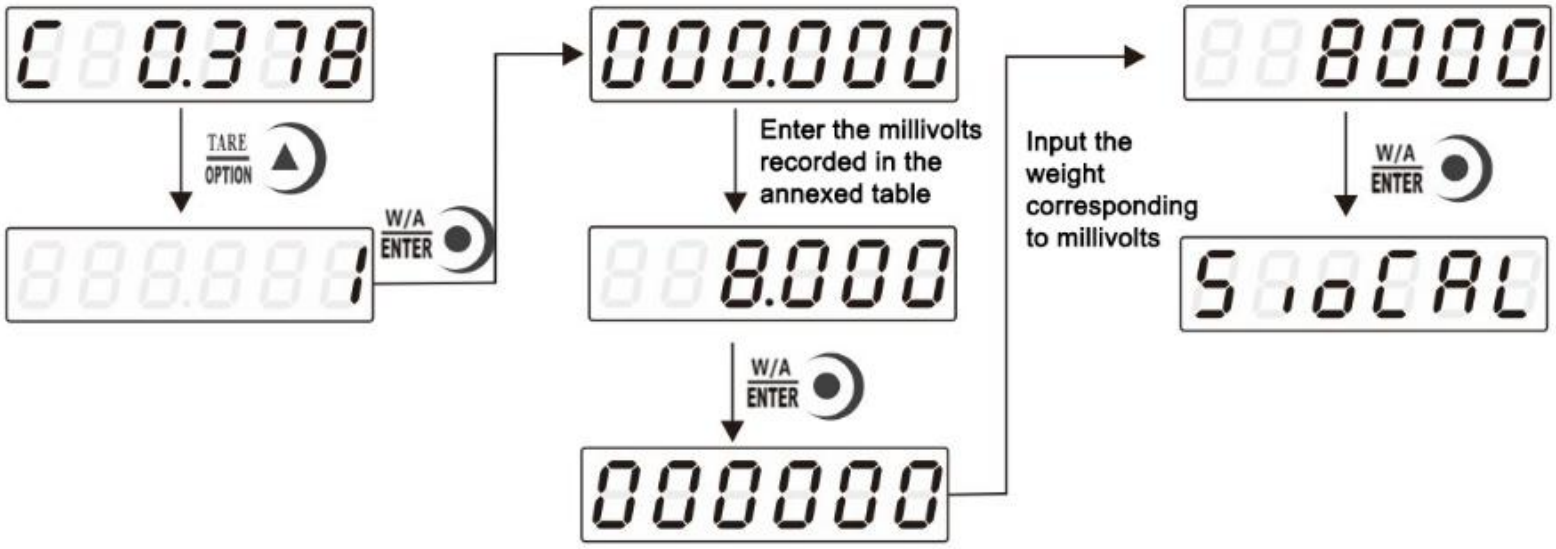
There are two methods for weighting - free calibration gain

1) Historical calibration: Gain calibration by entering historical record values

2)Theoretical calibration: Calibrate through sensor sensitivity and maximum range value of input mechanism (the sum of the average value of input sensitivity and

maximum range when multiple sensors are connected)

Historical gain calibration

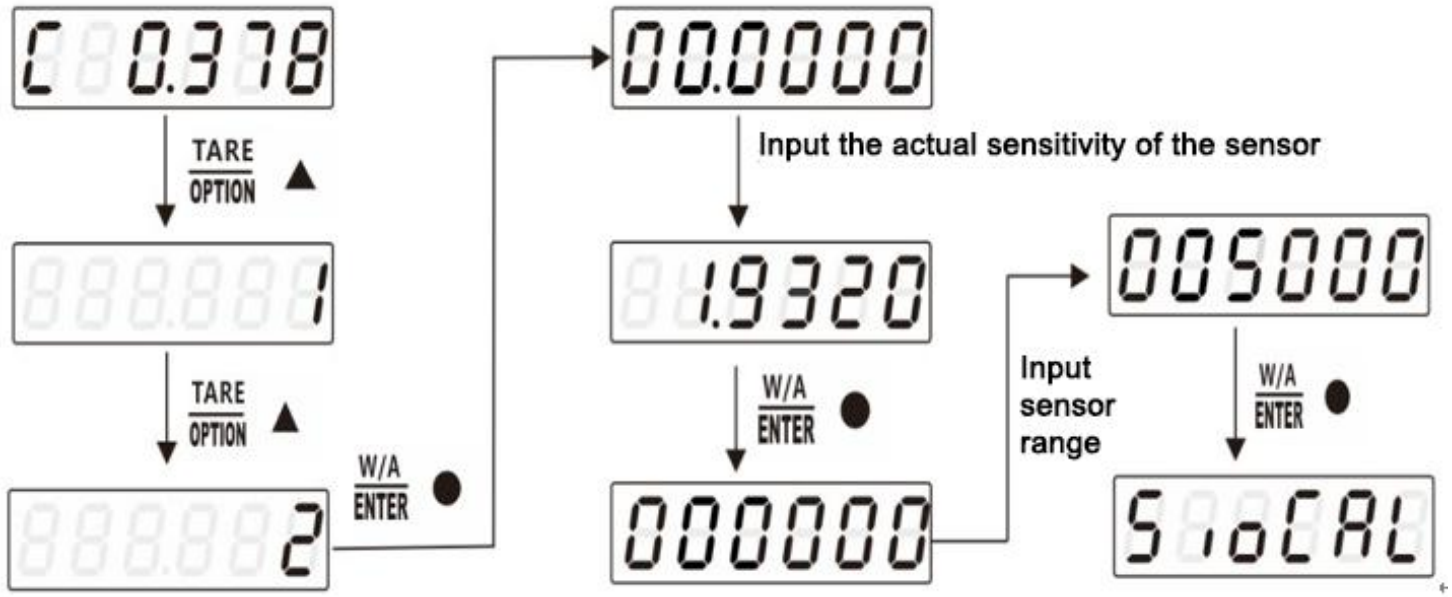


1) In gain calibration interface, press TARE/OPTION ▲, and the interface displays 1. Press W/A/ENTER ● to enter the manual gain millivolt input interface and enter the historical millivolt value.

2) Press W/A ENTER ● save to enter the weight input interface and enter the weight value corresponding to the millivolt number.

3) Press W/A ENTER ● save to complete gain calibration and enter the serial port calibration switch.

Sensitivity and gain calibration range



1) In gain calibration interface, press twice TARE/OPTION ▲ to enter and choose "2" press enter interface for manual input of sensor sensitivity and input the sensitivity of the actual sensor.

2) Press W/A/ENTER ● , enter the maximum range input interface and input sensor range.

3) Press W/A/ENTER ● , complete gain calibration and enter serial port calibration switch.

3.6 Calibration Switch for Communication Interface

When calibrate the transmitter through serial port(Rs、SP1 or Modbus), must set to "ON" status for the calibration switch for communication interface.

3.7 Explanation for Calibration Parameters

Symbol	Parameter	Types	Value of parameter	Default
Pt	Decimal Point	**5**	**0 0.0 0.00 0.000 0.0000**	**0**
1d	Min. Division	**6**	**1 2 5 10 20 50**	**1**
CP	Max. Capacity		≤Min. Division×**100000**	**10000**
t	Millivolt Value			

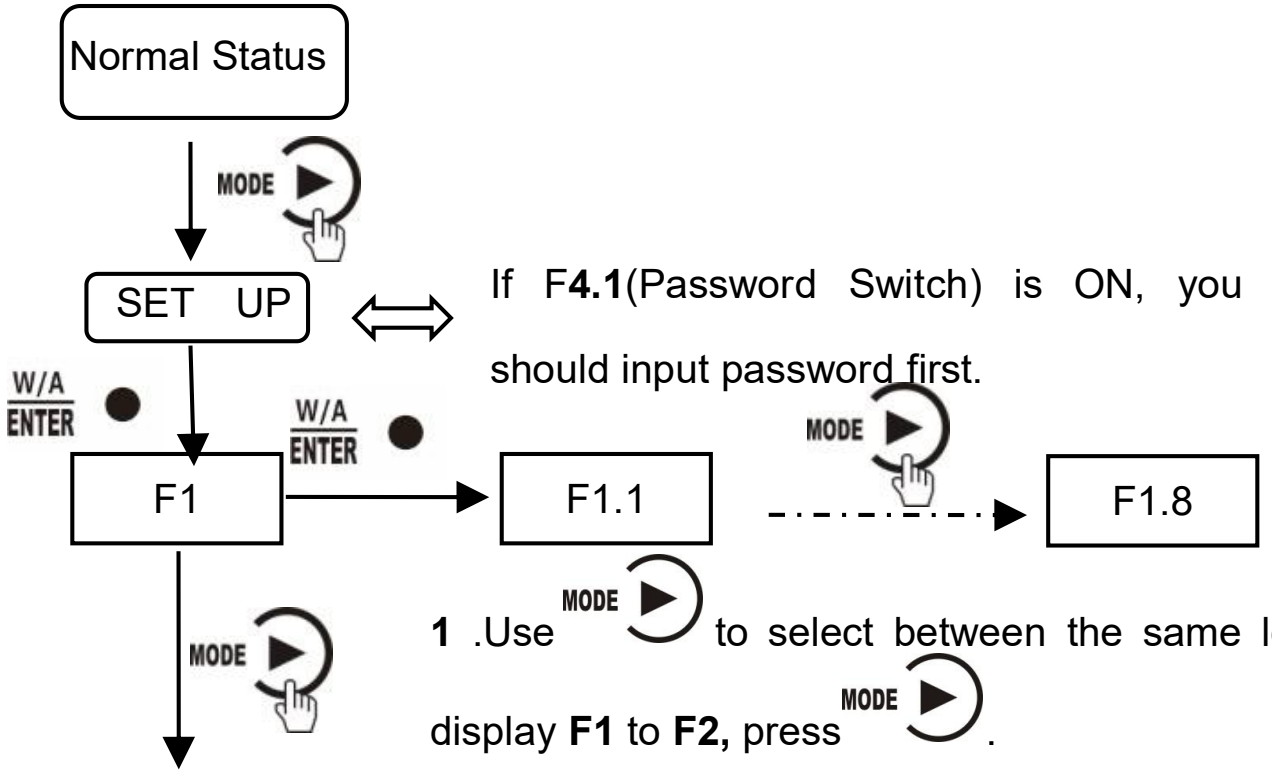
o	Zero			
C	Gain			
SIOCAL	Switch for Calibration via serial interface			**OFF**
PASS	Password Setting			**000000**

Log Table for Calibration Parameters

Parameter	Calibrated Value	Date	Remarks
Decimal Point			
Min. Division			
Max. Capacity			
Load cell sensitivity			
Password			

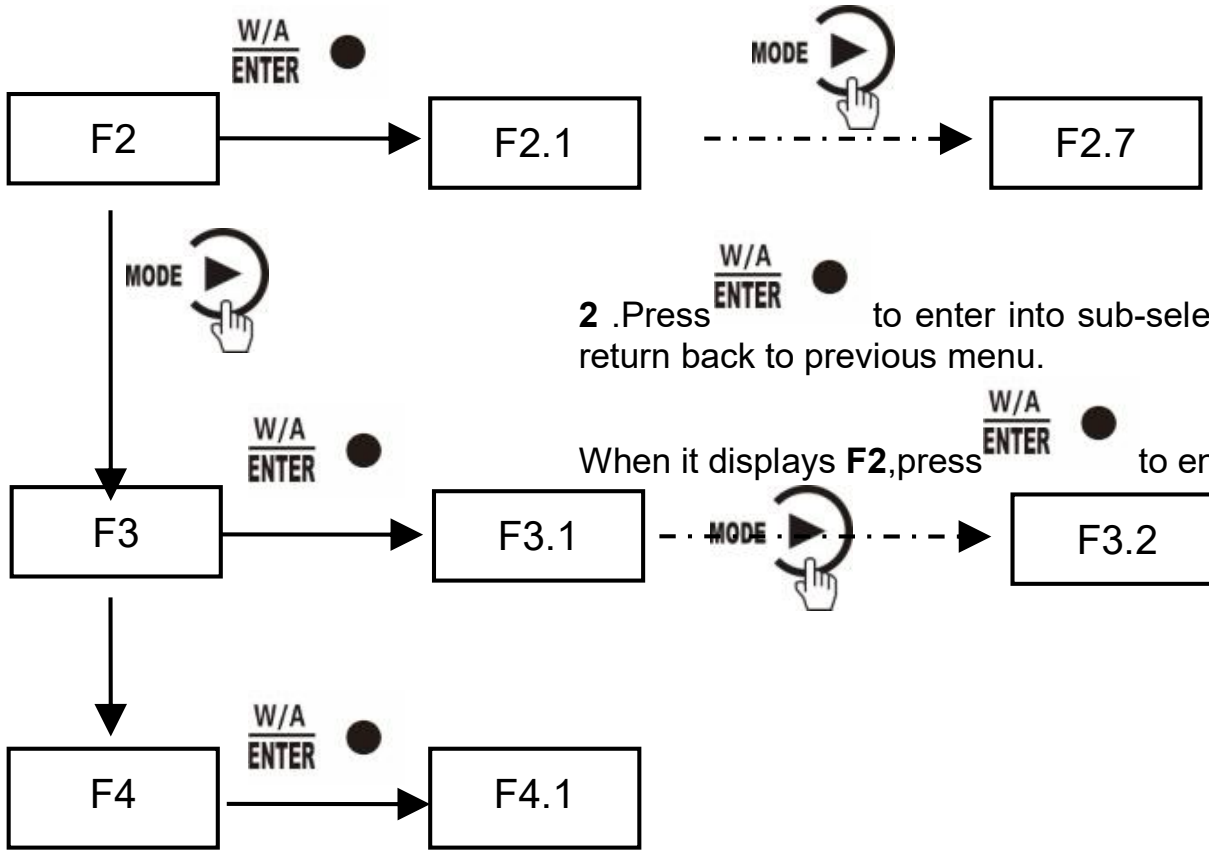
4 Working Parameters Setting

4.1 Flow Chart of Working Parameters Setting



If F**4.1**(Password Switch) is ON, you should input password first.

1 .Use MODE to select between the same level. Switch from display **F1** to **F2,** press MODE.



2 .Press W/A ENTER to enter into sub-selection, press ZERO ESC to return back to previous menu.

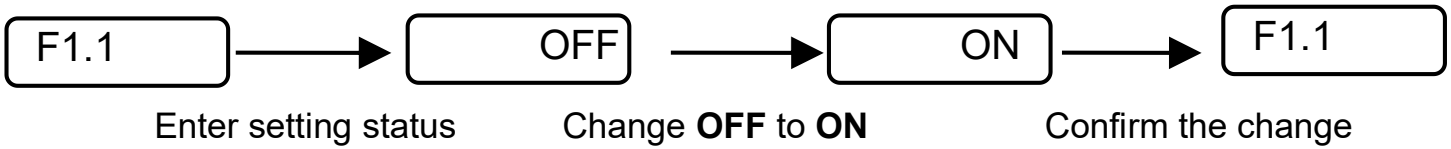
When it displays **F2**,press W/A ENTER to enter into **F2.1.**

4.2 Parameter Setting Method

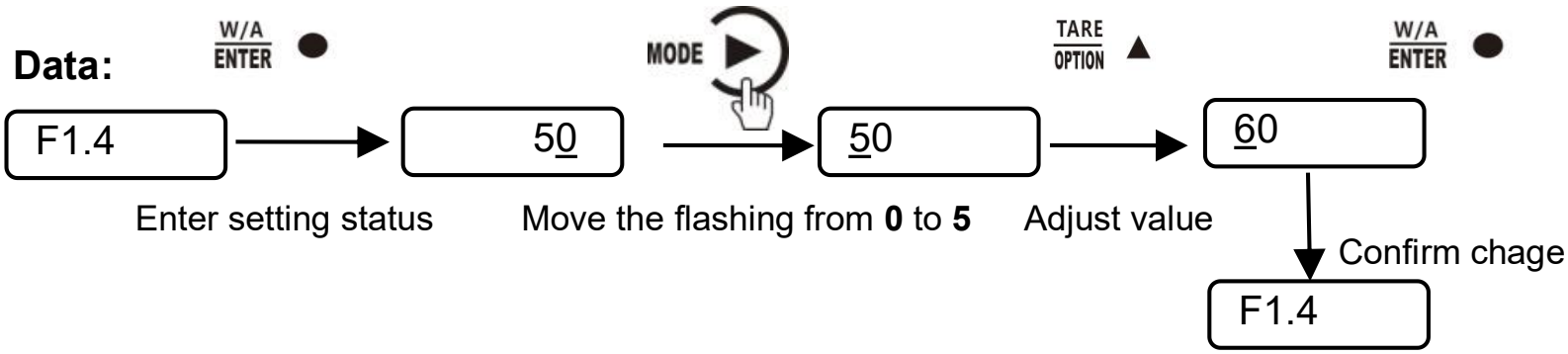
GMT-P1 has 2 kinds of working parameters: Selection type and data type. For

selection type parameters, press TARE/OPTION ▲ to choose. For data type parameter in parameter interface, press MODE ▶ to choose digit position, press TARE/OPTION ▲ to choose value.

Selection: TARE/OPTION ▲



Data: W/A/ENTER ●



4.3 Descriptions of Operation Parameters

Code	Default	Description
F1	**Null**	**The first major term of working parameter.**
F1.1	**OFF**	Switch for Auto-Zeroing when power-on, OFF: disabled ON: enabled
F1.2	**0**	Zero-tracking Range（0～9d optional）. This parameter is for automatic calibration, disabled when is set ”0”.
F1.3	**0**	Motion Detecting Range（0～9d optional) It is stable if the change is within range.
F1.4	**50**	Zeroing Range（00%～99% of Maximum capacity）
F1.5	**5**	Digital filtering parameter: (1-9 as optional) 0: without filtering 9: strongest digital filtering
F1.6	**0**	VF-Filter 0: without filtering 9: strongest digital filtering(1-9 as optional)
F1.7	**0**	A/D conversion rate: 120,480,960,15,30,60 as optional

F1.8	**0**	0： NET indicating net weight； 1： NET indicating communication
F2	**Null**	**The second major term of working parameter.**
F2.1	**01**	Scale no., indicator no.
F2.2	**38400**	Baud rate of serial port:1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 57600
F2.3	**Modbus-RTU**	Serial ports communication mode: **Modbus-RTU：MODBUS RTU mode;** **r-Cont:SP1 continuous mode;** **r-SP1: SP1 command mode；** **tt:TOLEDOcontinuous mode；** **Cb920：Cb920 continuous mode。** **rE-Cont:rE continuous mode；** **rE- rEAd:rEcommand mode；**
F2.4	**8-E-1**	**Data format:** **7-E-1：7** data bit，even parity check，**1** stop bit； **7-O-1：7**data bit，odd parity check，**1** stop bit； **8-E-1：8** data bit，even parity check，**1** stop bit； **8-O-1：8** data bit，odd parity check，**1** stop bit；

		8-n-1：**8** data bits，no parity check，**1** stop bit； **8-n-2**：**8** data bits，no parity check，**2** stop bits；
F2.5	**HiLo**	**MODBUS dual-byte register storage turn**，**Hi Lo**：High byte in the front, low byte at the back；**Lo Hi**：Low byte in the front, high byte at the back
F2.6	**nONE**	Cont mode automatic sending time interval
F2.7	**0**	**tt**(**TOLEDO continuous mode**)If send the checksum。 **0**：not send, **1**：send.
F3	**Null**	**The third major term of working parameter.**
F3.1	**0-255**	The first paragraph of IP, initial vale 192
F3.2	**0-255**	The second paragraph of IP, initial vale 168
F3.3	**0-255**	The third paragraph of IP, initial vale 1
F3.4	**0-255**	The fourth paragraph of IP, initial vale 1
F3.5	**1-65534**	Modbus-TCP communication port no., initial value 502
F3.6		Ethernet communication mode 0：b Tcp；1：Cont
F4	**Null**	**The fourth major term of working parameter.**
F4.1	**OFF**	Parameters password setting switch.
F4.2	**000000**	Parameters password setting:**Valid when F4.1 is ON**
F5	**Null**	Parameter setting refer the 5th term

F5.1	**1.00000**	Weight correction factor K, weight correction factor K = Expected weight/current weight range: 0-9.99999 When the weight is calibrated (gain) or the calibration parameter is reset, the value changes to the default value of 1.00000

4.4 Set point parameters

Code	Default	Description
P1-P4	**Null**	**The first term of working parameters**
PX.1	**OFF**	Change of state if need stable
PX.2	**0.0**	Change of state minimum duration
PX.3	**P1.3=1** **P2.3=5** **P3.3=0** **P4.3=0**	Condition of validity： 0：forbid； 1：< Less than; when the weight is less than Fx. 4, the output is valid, otherwise it's invalid 2：<= Less than or equal to; when the weight is less than or equal to Fx. 4, the output is valid; otherwise, it is invalid. 3：== Equal; when the weight is equal to Fx. 4, the output is valid; otherwise, it is invalid

		4：>=； Bigger than or equal to; when the weight is greater than Fx. 4, the output is valid, otherwise, it is invalid 5：> Bigger than; when the weight is greater than Fx. 4, the output is valid, otherwise, it is invalid 6：!= not equal to; when the weight is not equal to Fx. 4, the output is valid, otherwise, it is invalid 7：_<>_ Outside the interval, When the weight is less than FX.4 or more than Fx. 5, the output is valid, otherwise, it is invalid 8：=<__>= In the interval, when the weight is bigger than or equal to Fx. 4 and less than or equal to Fx. 5, the output is valid, otherwise, it is invalid 9：external trigger. If it's IO，do 1 state change for 1 trigger, if it's command, then decide according to valid or invalid command.
PX.4	**0**	Set value 1; 0 ~ 999999 can be set
PX.5	**0**	Set value 2; 0 ~ 999999 can be set

Set point has **4** major terms which are user defined.

5 I/O Definition

5.1 I/O Definition

In the main display interface, press MODE ▶ 4 times to display iodEF in the indicator. In this interface, press W/A ENTER ● to enter the interface of custom setting of I/O module. If the password ON/OFF of working parameter F4.1 is set as ON, the password of working parameter needs to be entered before entering the custom setting of I/O module.

Operation steps of I/O module customization: After entering the interface of I/O module customization,

1) Press W/A ENTER ● to modify the definition of OUT1
2) Press TARE OPTION ▲ to select the meaning code of I/O module
3) Press W/A ENTER ● to confirm and return to the OUT1 interface

4) Press MODE ▶ to define the next I/O module, then press MODE ▶ to skip the current I/O module definition (keep the original definition) to set the next I/O module. The definition method is the same as the above three steps, which will not be repeated here. Press ZERO/ESC ■ to exit when the setup is complete.

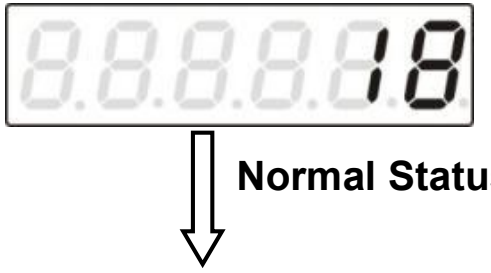
Output/Input code table:

Output		
Code	**Definition**	**Description**
O0	None	No definition
O1	Stable	Effective output in stable status.
O2	Overflow	Effective output when overflow.
O3	Sp**1**	Effective output when set point **1** status output.
O4	Sp**2**	Effective output when set point **2** status output.

O5	Sp**3**	Effective output when set point **3** status output.
O6	Sp**4**	Effective output when set point **4** status output.
Input		
Code	**Definition**	**Description**
I0	None	No definition
I1	Zeroing	Effective input for zeroing, pulse input signals
I2	Sp**1**	If this signal is valid, Sp**1** status will be regarded as invalid. Output valid state when comparision condition turns to invalid, and be effective again.
I3	Sp**2**	If this signal is valid, Sp**2** status will be regarded as invalid. Output valid state when comparision condition turns to invalid, and be effective again.
I4	Sp**3**	If this signal is valid, Sp**3** status will be regarded as invalid. Output valid state when comparision condition turns to invalid, and be effective again.

I5	Sp**4**	If this signal is valid, Sp**4** status will be regarded as invalid. Output valid state when comparision condition turns to invalid, and be effective again.
I6	Reset all	Reset all parameter value when this signal is valid.
I7	Tare/Add tare	Tare when the first valid signal. Add tare when second.
I8	Tare	Tare when the signal is valid.
I9	Add tare	Add tare when the signal is valid.
I10	I/0 define	IO calibration lock, when I10 is defined, cannot be calibrated if the input is invalid.

5.2 I/O testing



Under weighing status, press MODE (**5 times**), then display **TESTio**, press W/A ENTER enter into I/O testing interface.

⇔ Press TARE/OPTION ▲ **OUT1** status flash, press MODE ▶ **OUT2** status flash.

⇔ This interface shows:**IN1** input valid, **OUT1** output valid.

6 Communication

6.1 PROFINET Communication

GMT-P1 display has two PROFINET-IO bus connections, Port1 and Port2, and can be used as a PROFINET-IO slave station to connect to the PROFINET bus.

IP address of indicator can be set and viewed in Setup working parameters F2.1~F2.4; MAC address in F2.5~F2.10 to view.

6.1.1 I/O Status

GMT-P1 provides multi-byte, IO output in two modules, through which the master station can read and control the status of the weighing display.

Module 1: Weight and status parameter (read register)

Weight offset	Parameter	Data type	Description
0	Weight display	DInt	Current display weight, integer
4	Weight status marker	Duint	D4-D15 Reserved
			D3：Weight marker

			D2： ZERO， （weight is in 0+/-1/4d range）
			D1：Weight overflows bit
			D0：Weight stable marker
8	Gross weight	**DInt**	Gross weight (signal integer)
12	Net weight	**DInt**	Net weight (signal integer)
16	Tare weight	**DInt**	Tare weight (signal integer)
20	Current weight	**Float**	Current weight, floating-point type
24	Gross weight	**Float**	Gross weight, floating-point type
28	Net weight	**Float**	Net weight, floating-point type
32	Tare weight	**Float**	Tare weight, floating-point type
36	Preset point status area	**Word**	**D5**–**D15** Reserved

			D3： Preset point 4 status area
			D2： Preset point 3 status area
			D1： Preset point 2 status area
			D0： Preset point 1 status area
38	Heartbeat communication	**Word**	The value of PN's communication heartbeat is always 1 after the connection is established, and the communication light is always on. After flashing the LED light, the communication light will blink at the frequency of 1Hz, and the value of communication heartbeat will also convert between 0 and 1 at the frequency of 1Hz

Module 2: Calibration parameter (read register)

Weight offset	Parameter	Data type	Description	
Weight calibration				**Read register**
0	Weight ZERO calibration	**DWord**	Read absolute millivolts	
4	Weight gain calibration	**DWord**	Read relative millivolts	
No weight calibration				
8	No weight ZERO calibration	**DWord**	Read Zero calibration millivolt	
12	No weight gain calibration voltage value	**DWord**	Read gain calibration millivolt	
16	No weight gain calibration weight	**DWord**	Read gain calibration weight	

Theoretical value calibration				
20	Load cell sensitivity	**DWord**	Load cell sensitivity	
24	Load cell full range	**DWord**	Load cell full range	
28	Weight correction factor	**DWord**	used to correct the weight value factor	
Custom read				
32	Modbus read out value	**DWord**	Reads the value of a specific address	
36	Modbus write status	**Word**	Write data return status 0: normal 1: register address is illegal 2: parameter error	

38	Modbus read status	Word	Write data return status 0: normal 1: register address is illegal 2: parameter error	

Module 3: Calibration parameter (write register)

Weight offset	Parameter	Data type	Description	
Weight calibration				**Write register**
0	Weight ZERO calibration	**DWord**	Write 1 to automatically calibrate zero	
4	Weight gain calibration	**DWord**	Enter weight value	
No weight calibration				
8	No weight ZERO calibration	**DWord**	write Zero calibration	

			millivolt	
12	No weight gain calibration voltage value	**DWord**	write gain calibration millivolt	
16	No weight gain calibration weight	**DWord**	write gain calibration weight	
Theoretical value calibration				
20	Load cell sensitivity	**DWord**	Write load cell sensitivity	
24	Load cell full range	**DWord**	Write load cell full range	
28	Weight correction factor	**DWord**	used to correct the weight value factor	
Function operation				
32	Function operation	**Duint**	**D15**：I/O	

			module	
			D14： parameter reset	
			D13： calibration reset	
			D12： all reset	
			D4-D11 reserved	
			D3： GS/NT	
			D2： clear tare	
			D1： tare	
			D0： zero	

Self-define write in				
36	Modbus write operate address	DWord	Modbus write operate address	
40	Modbus write operate value	DWord	Modbus write operate value	
44	Modbus read operate value	DWord	Modbus read operate value	

6.1.2 Indicator Description file GSD

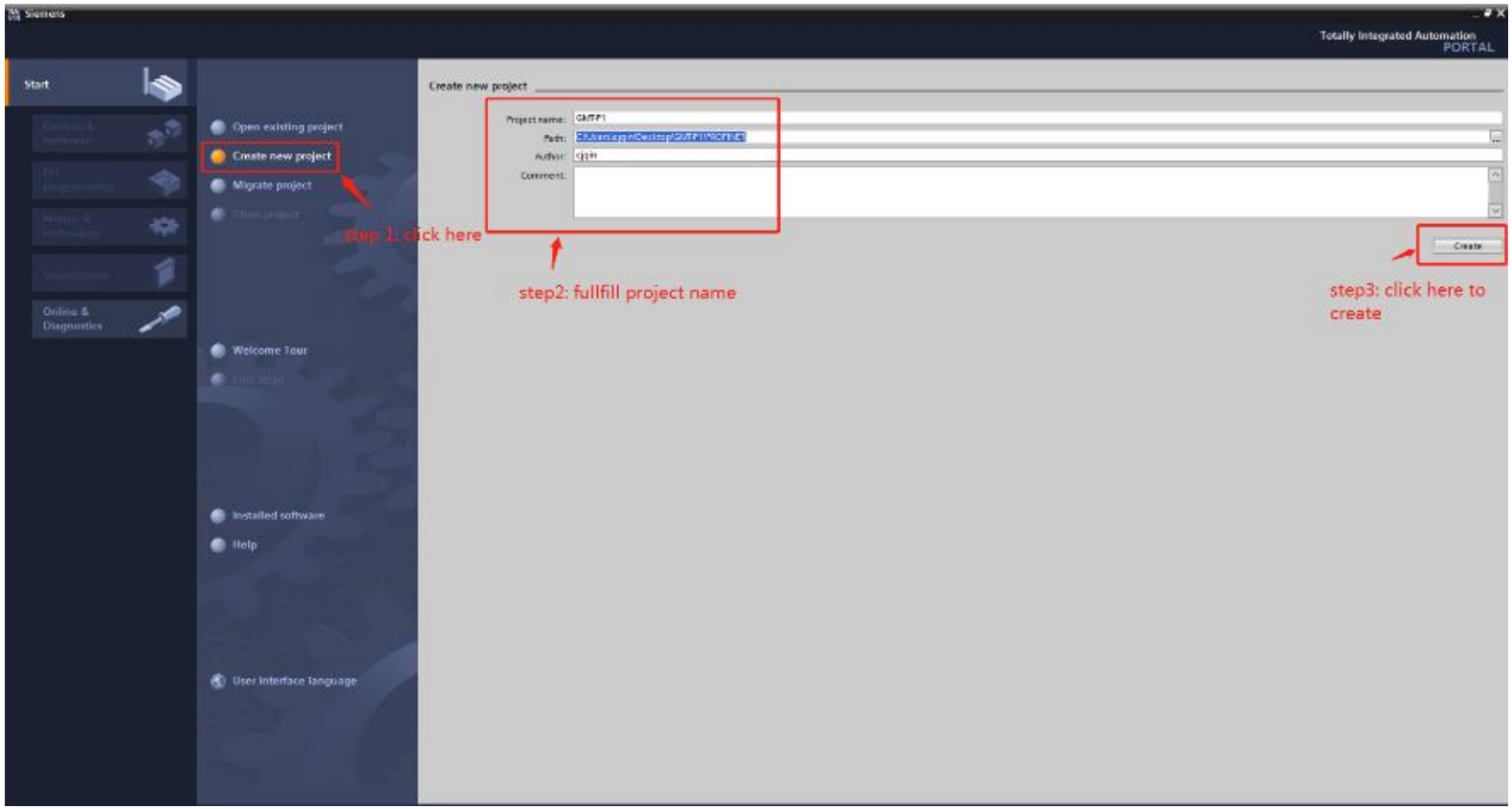
GMT-P1 description file and connection method can download at

www.gmweighing.com

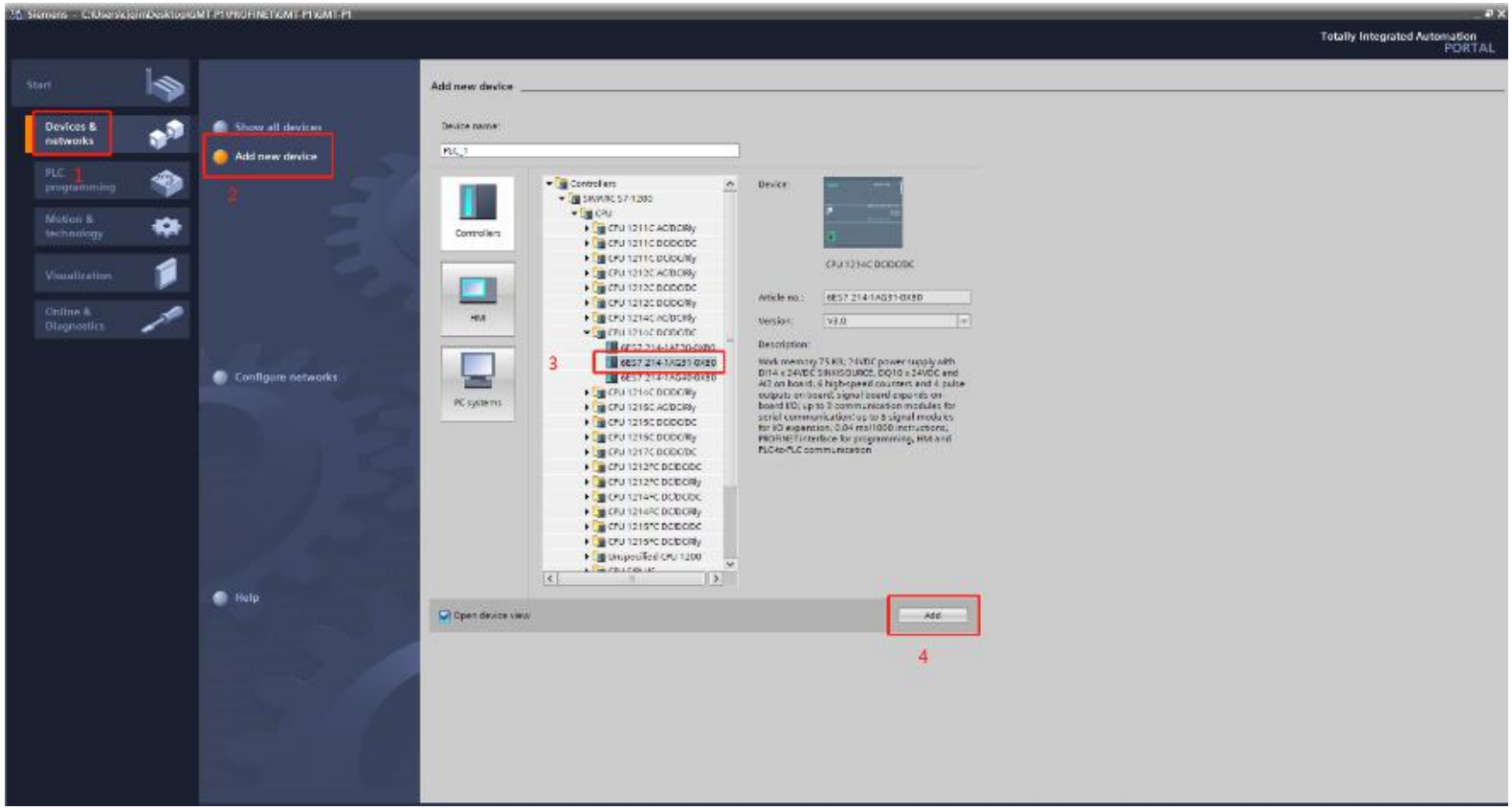
6.1.3 Profinet master configuration GMT-P1

Taking Siemens 1200 as the master station as an example, GMT-P1 is briefly configured as the slave station.

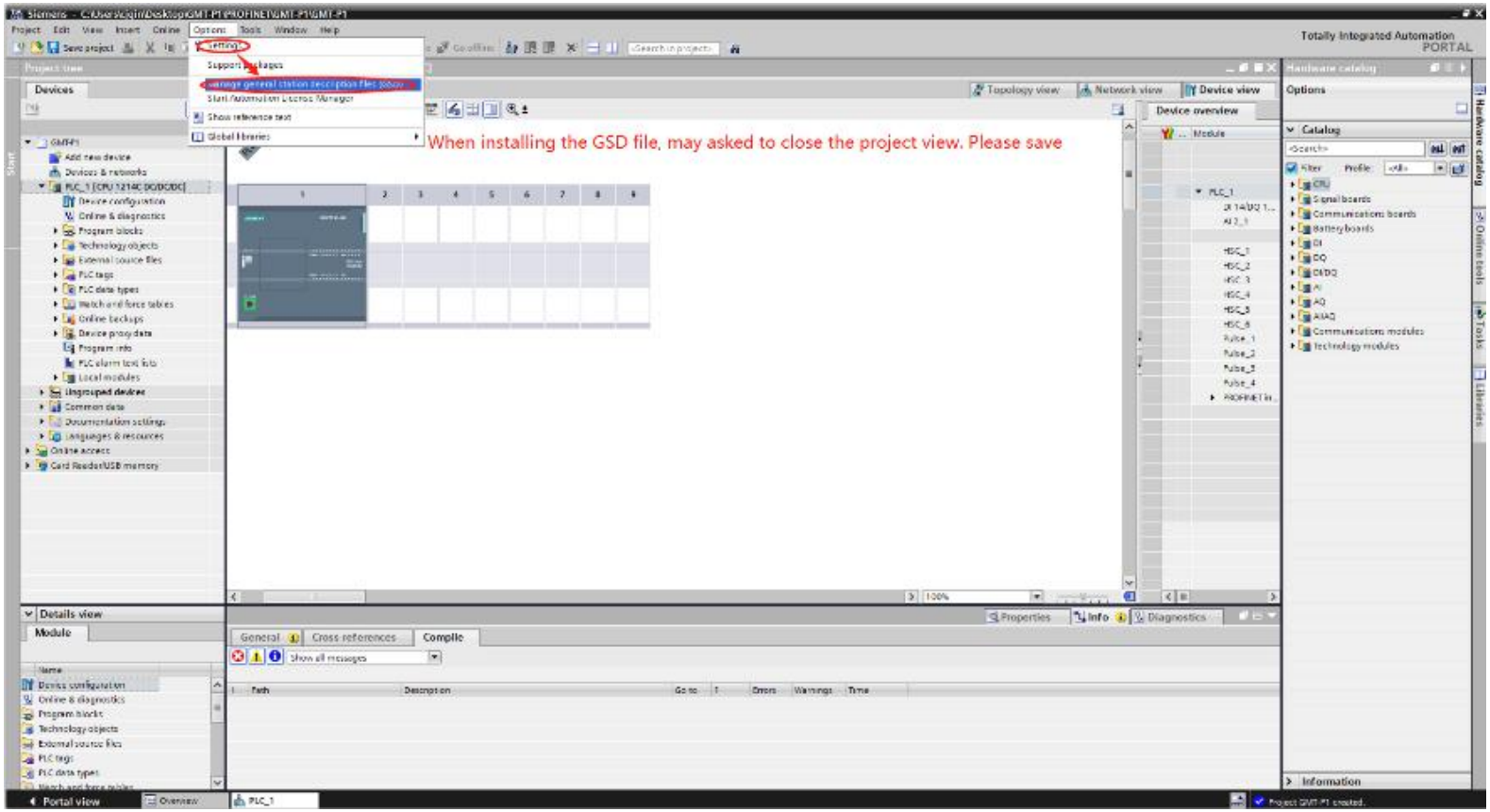
1) Open the Botu management software and create a new project



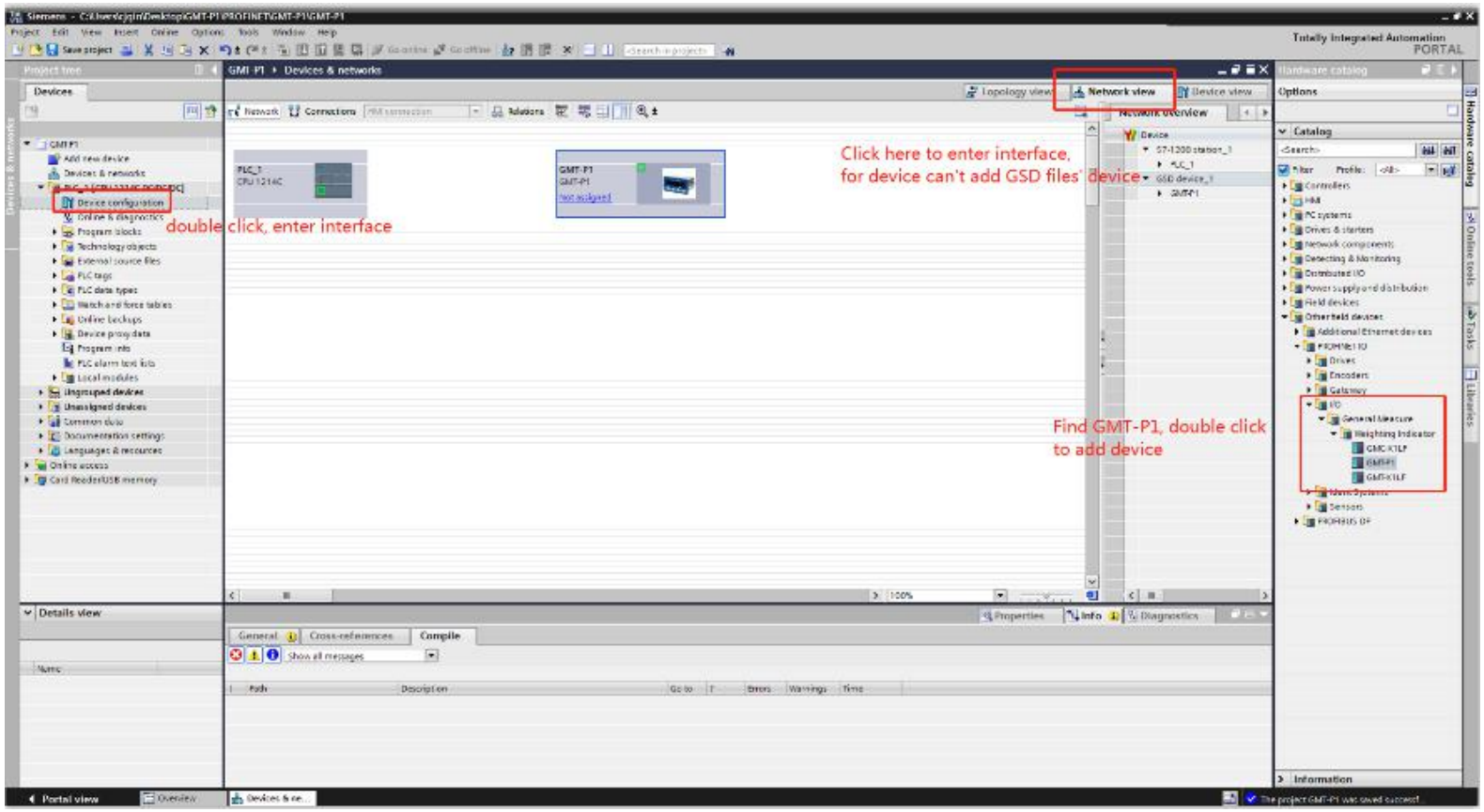
2) Click "Add New Device" on the left and select "Controller" to select the model to use the corresponding PLC

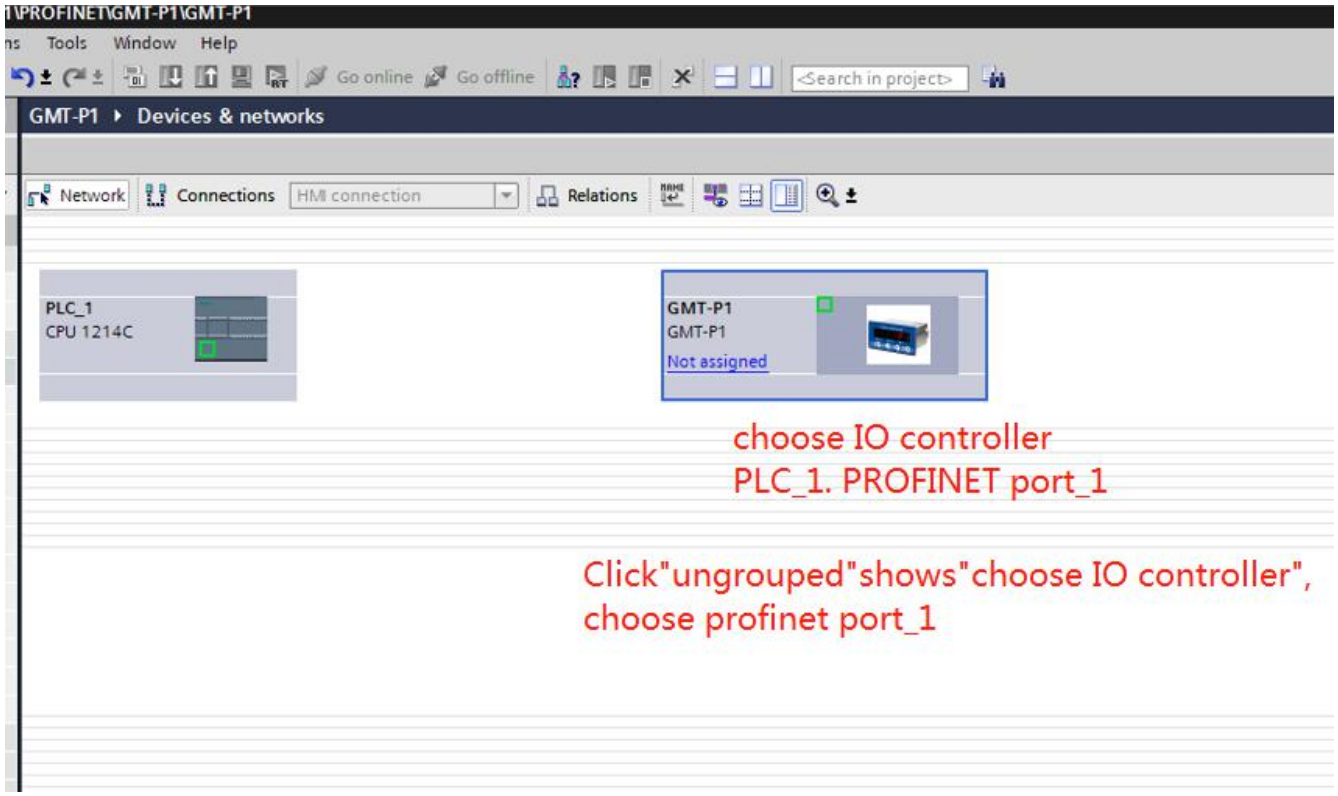


3) Double-click the PLC device in the left "Local Module", and select " Manage general station description files (GSD)" from the menu bar.

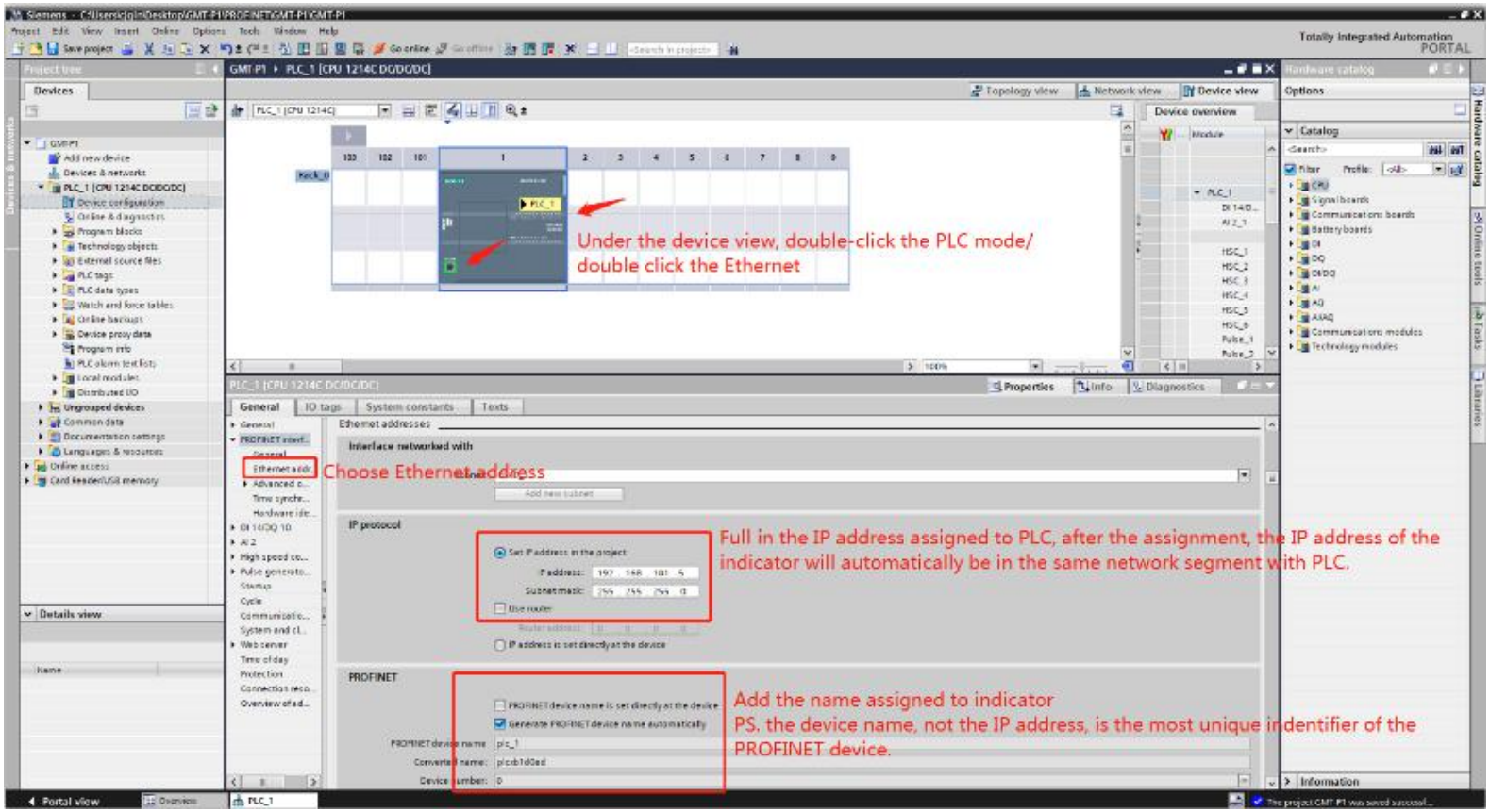


4) Configuration network. Switch to Network View, find GMT-P1 Device, double-click add Device to connect the indicator to the PLC.

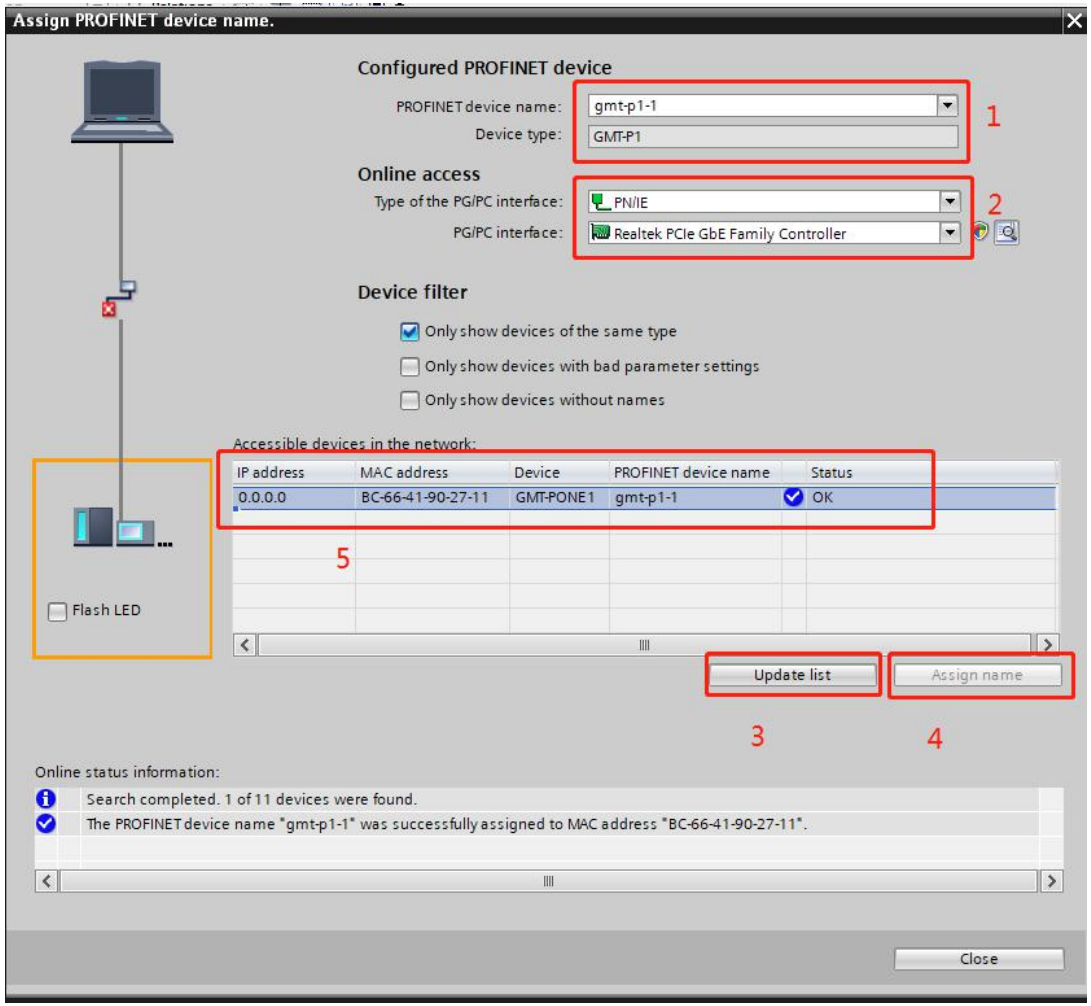



\PROFINET\GMT-P1\GMT-P1
ns Tools Window Help
Go online
Go offline
<Search in project>
GMT-P1 ▸ Devices & networks
Network
Connections
HMI connection
Relations
PLC_1
CPU 1214C
GMT-P1
GMT-P1
Not assigned
choose IO controller
PLC_1. PROFINET port_1
Click"ungrouped"shows"choose IO controller",
choose profinet port_1

5) Set the IP address and name. In the device view, double-click the PLC module/double-click the network port to Settings



6) Assign device names. Device view as below, right-click and select assign device Name.

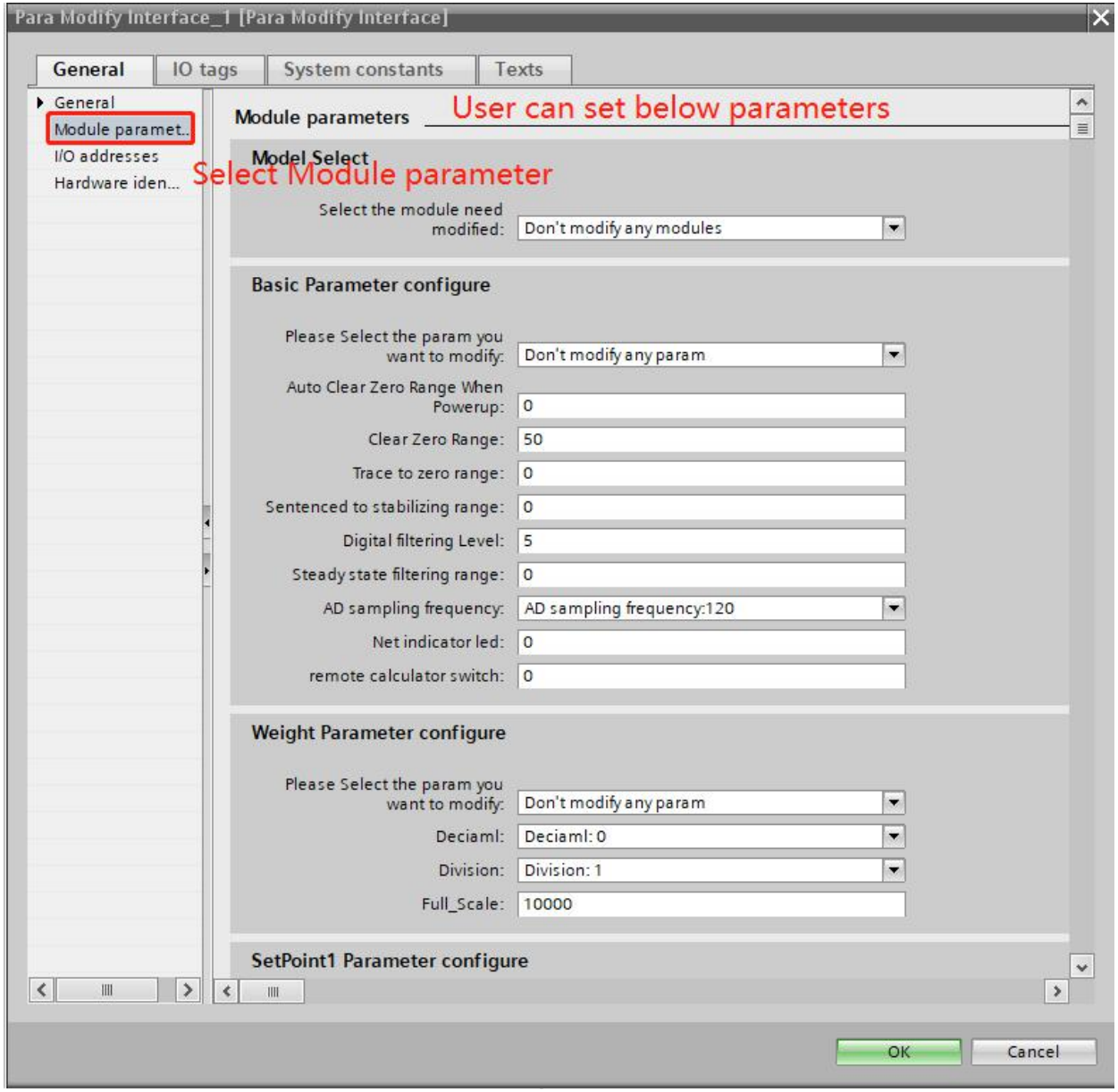


7) Configure indicator parameters and operate them. In the Device view, click "Ungrouped Device→ Parameter Modify Interface _1→ Property" on the left.

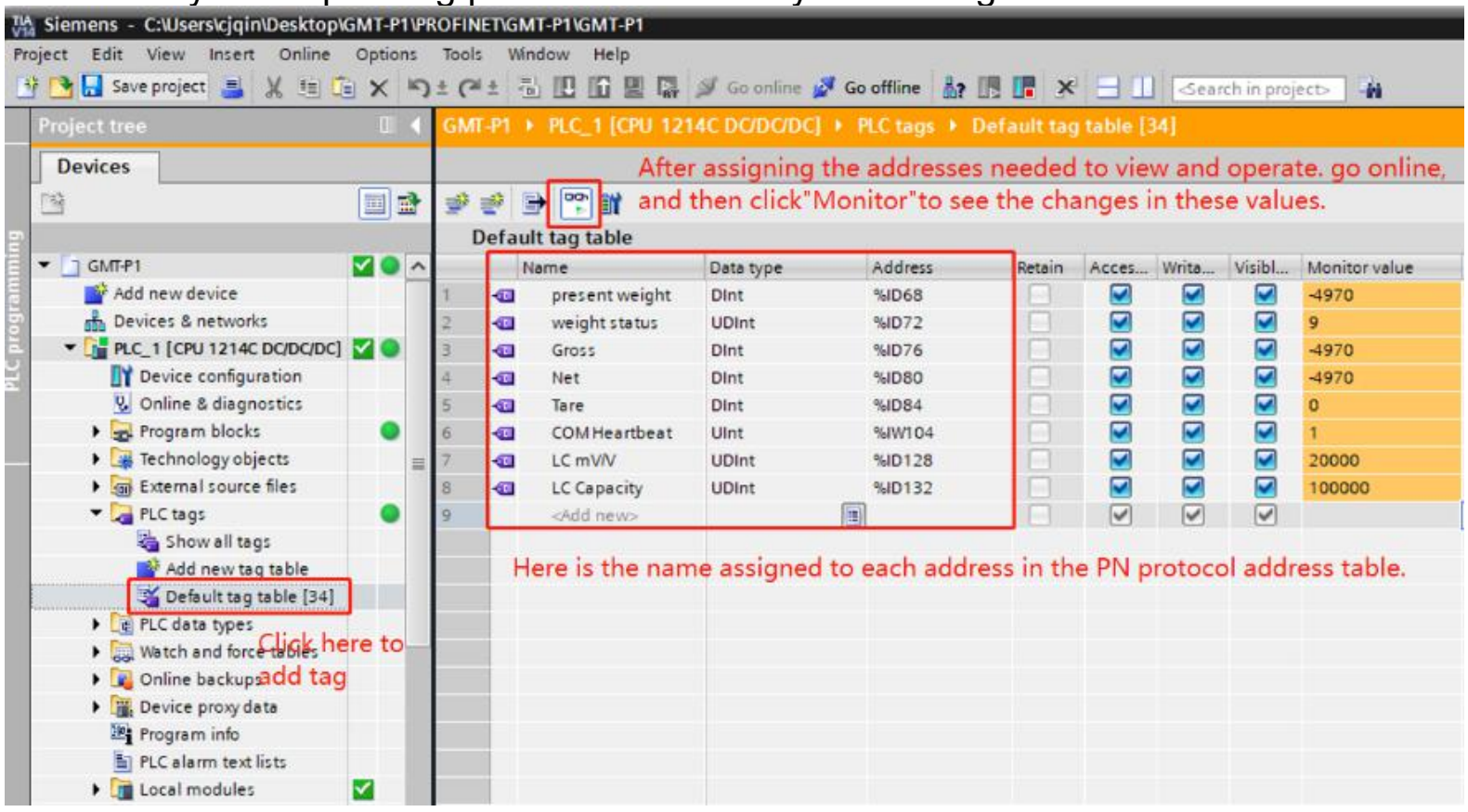
Note:

✧ The remote calibration ON/OFF is required to be ON to modify the calibration parameters.

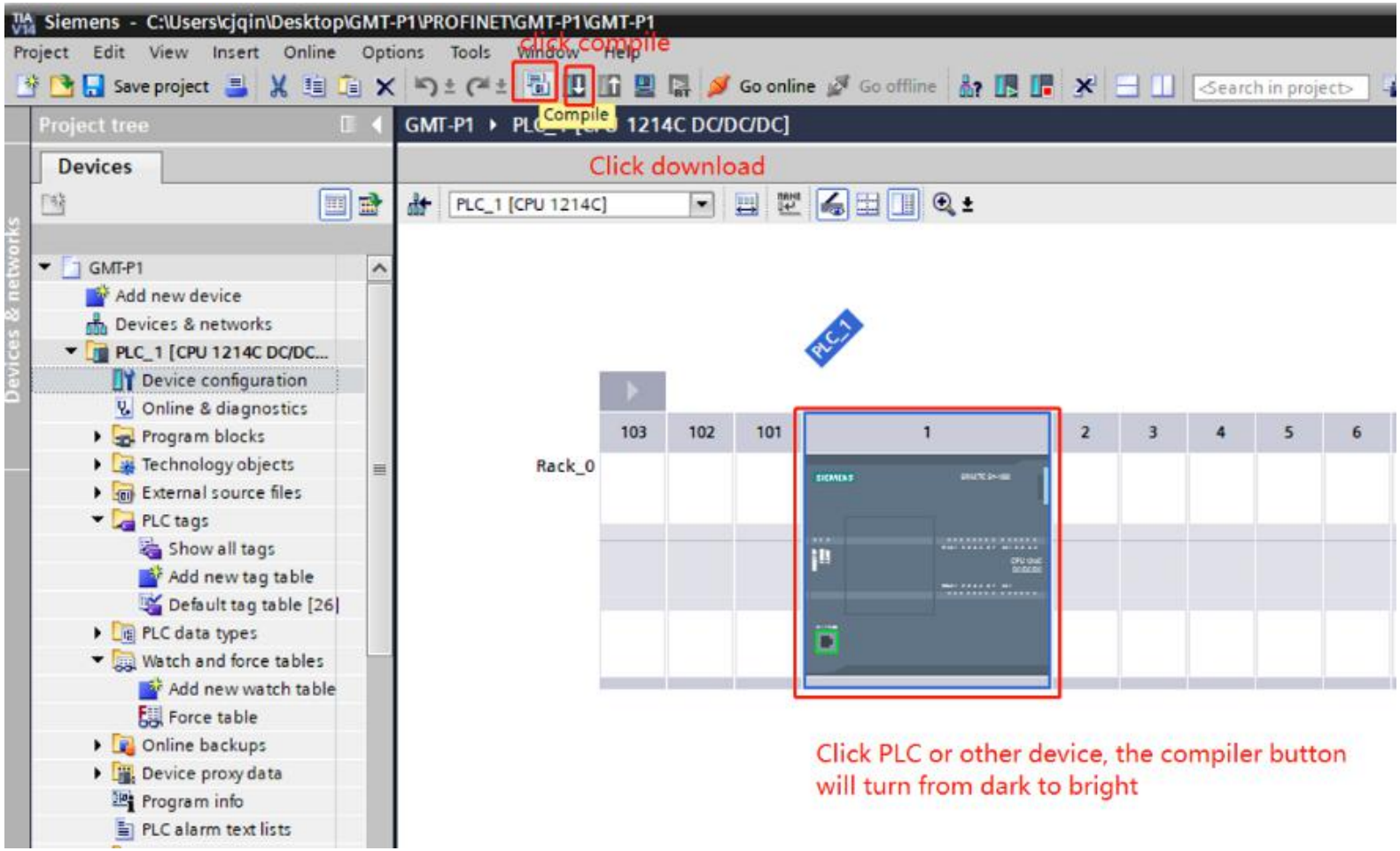
✧ After modifying the parameters, need to recompile and download to PLC, the parameters take effect.


Para Modify Interface_1 [Para Modify Interface]
General
IO tags
System constants
Texts
General
Module paramet..
I/O addresses
Hardware iden...
Module parameters
User can set below parameters
Model Select
Select Module parameter
Select the module need modified:
Don't modify any modules
Basic Parameter configure
Please Select the param you want to modify:
Don't modify any param
Auto Clear Zero Range When Powerup:
0
Clear Zero Range:
50
Trace to zero range:
0
Sentenced to stabilizing range:
0
Digital filtering Level:
5
Steady state filtering range:
0
AD sampling frequency:
AD sampling frequency:120
Net indicator led:
0
remote calculator switch:
0
Weight Parameter configure
Please Select the param you want to modify:
Don't modify any param
Deciaml:
Deciaml: 0
Division:
Division: 1
Full_Scale:
10000
SetPoint1 Parameter configure
OK
Cancel

8) IO loop data operation. In the device view, view the IO address assigned to the module by the PLC. Assign I address and Q address according to IO status table. Modify corresponding parameter values by monitoring table.



9) Compile, download and online. After downloading, switch to online, open the monitoring table, you can view and modify the parameters of the indicator.



6.2 Ethernet-IP communication

You can set and view the **IP** address of the indicator in the second major item of the parameter. After setting, it will take effect only after re-powering. You can also view the **MAC** address.

6.2.1 IO status

GMT-P1 provides multi-byte **IO,** through these I/O enable the master station to read and control the status of the weighing display

Module 1: weight, calibration and status parameters (read register)

Weight offset	Parameter	Data type	Description
0	Weight display	**DInt**	Current display weight, integer
4	Weight status marker	**Duint**	D4-D31 Reserved
			D3：Weight marker
			D2： ZERO， （weight is in

			0+/-1/4d range）
			D1：Weight overflows bit
			D0：Weight stable marker
8	Gross weight	**DInt**	Gross weight (signal integer)
12	Net weight	**DInt**	Net weight (signal integer)
16	Tare weight	**DInt**	Tare weight (signal integer)
20	Current weight	**Float**	Current weight, floating-point type
24	Gross weight	**Float**	Gross weight, floating-point type
28	Net weight	**Float**	Net weight, floating-point type
32	Tare weight	**Float**	Tare weight, floating-point type
36	Preset point status area	**Word**	**D4**－**D15** Reserved
			D3：Preset point 4 status area

			D2： Preset point 3 status area
			D1： Preset point 2 status area
			D0： Preset point 1 status area
38	Heartbeat communication	**Word**	The communication light flashes at 1 Hz, and the communication heartbeat switches between 0 and 1 at 1 Hz
weight calibration			
40	weight zero calibration	**DWord**	Read absolute millivolts
44	weight gain calibration	**DWord**	Read relative millivolts
No weight calibration			
48	No weight zero calibration	**DWord**	Read zero calibration millivolt

52	No weight gain calibration voltage value	**DWord**	Read gain calibration voltage value
56	No weight gain calibration weight value	**DWord**	Read gain calibration weight
Theoretical value calibration			
60	Load cell sensitivity	**DWord**	load cell sensitivity
64	Load cell full range	**DWord**	load cell full range
68	Weight correction factor	**DWord**	used to correct the weight value factor
Self-defined read			
72	Modbus read value	**DWord**	read specific address value
74	Modbus write status	**Word**	Modbus state of the write operation

76	Modbus read status	**Word**	Modbus state of the read operation

Module 2: calibration and operation parameters (write register)

Weight calibration			
0	Weight ZERO calibration	**DWord**	Write 1 auto zeroing
4	Weight gain calibration	**DWord**	Write weight value
No weight calibration			
8	No weight ZERO calibration	**DWord**	Write Zero millivolt
12	No weight gain calibration voltage value	**DWord**	Write gain millivolt
16	No weight gain calibration weight	**DWord**	Write gain weight
Theoretical value calibration			
20	Load cell sensitivity	**DWord**	Write load cell sensitivity

24	Load cell full range	**DWord**	Write load cell full range
28	Weight correction factor	**DWord**	used to correct the weight value factor
Function operation			
32	Function operation	**Duint**	**D15：** I/O module reset
			D14： Parameter reset
			D13： Calibration reset
			D12： Reset all
			D4- D11： Reserved
			D3： GS/NT
			D2： Clear tare
			D1： Tare

			D0：Zero
36	Modbus write operation address	**DWord**	Modbus write operation address
40	Modbus write operation value	**Word**	Modbus write operation value
44	Modbus read operation address	**Word**	Modbus read operation address

6.2.2 Device description file ESD

GMT-P1 device description file and connection method can down load at www.gmweighing.com

7 Password Input and Setting Reset

7.1 Password Input

（1）Indicator calibration and working parameters setting default password: **000000.**
（2）User can set password in parameters when **F3.1** is“**ON**”.
（3）When display is “PASS”, need to input correct password to enter parameters.

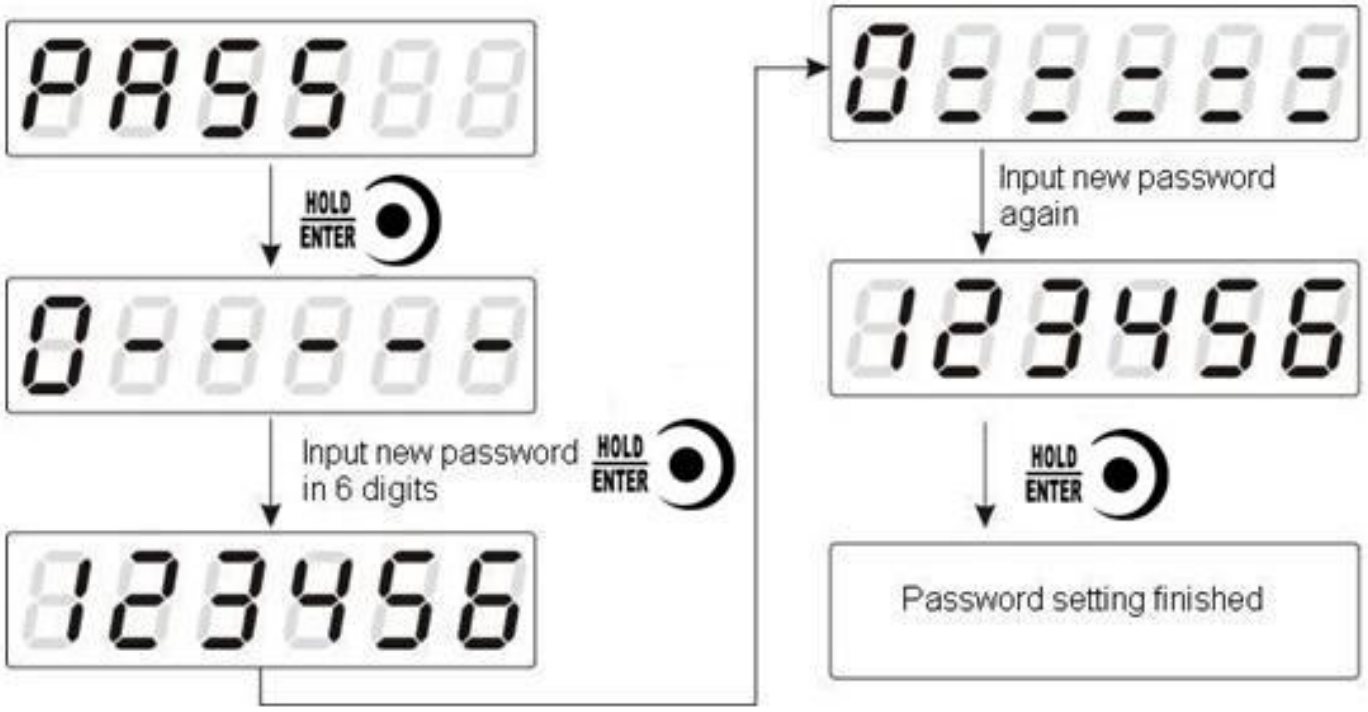
Note:

（1）When input password, if first time wrong, it will go to the second chance for password input(display from  turn to ).
（2）If second input wrong, it will enter into interface for inputting password the third time
(Display change from  to ).
（3）If Input wrong for three times, main display show “Error4” and self-lock, but user can operate when power on again.

7.2 Password Setting

（1）User can set password in parameters when **F3.1** is“**ON**”.

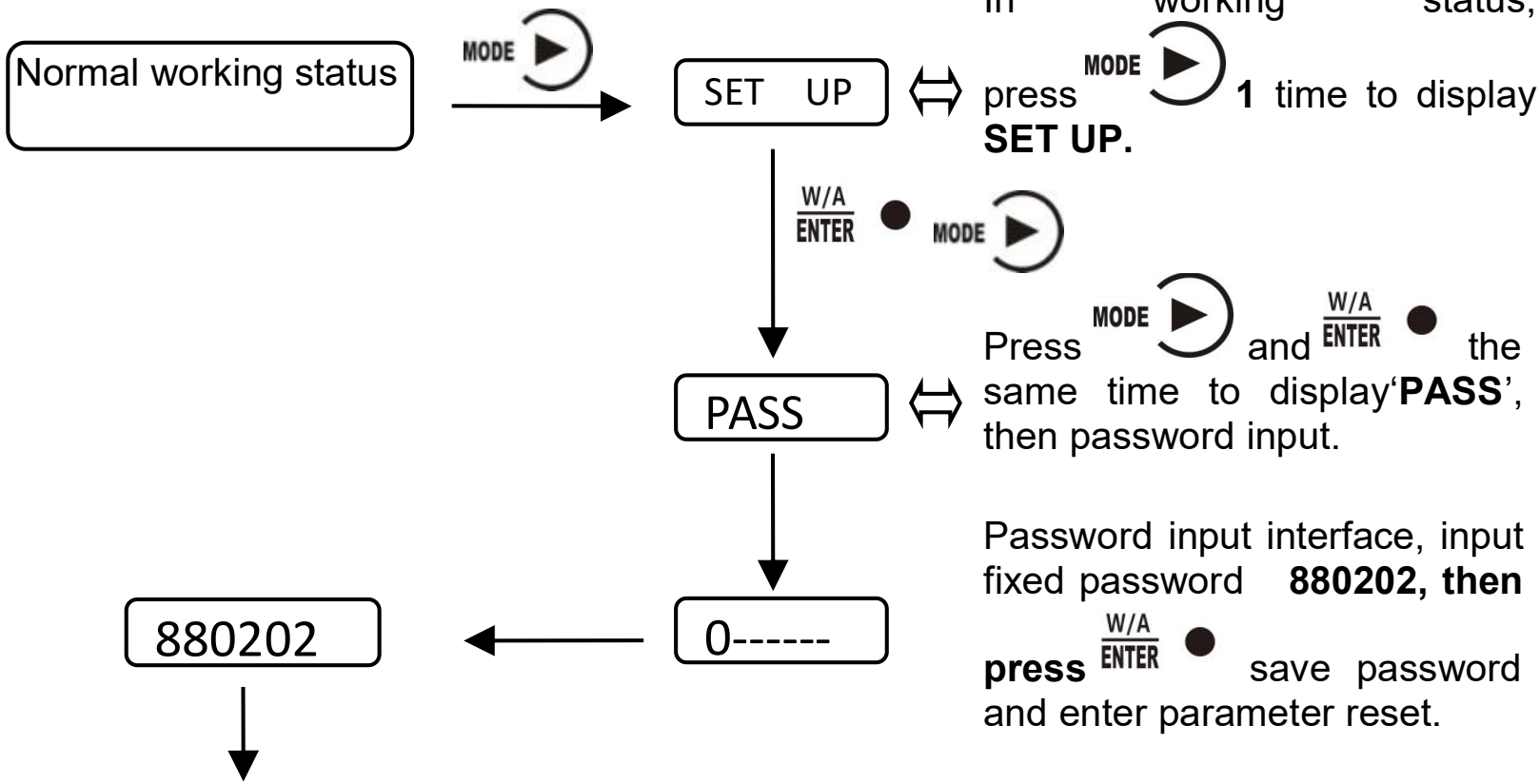
（2）User must input same new password twice in setting password,If not same, main display show“**Error**”one second and return to **PASS** again.

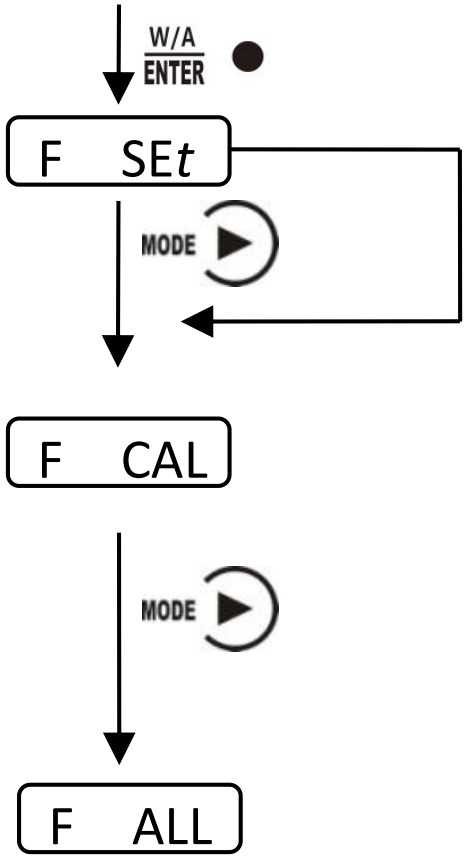


7.3 Factory Reset

Note: Factory reset is only for special technicists, which will reset all of parameters and will maybe cause not working.

Take reset all for example:





1）In **F SEt** interface, press W/A ENTER to reset working parameters, enter into reset calibration parameters interface.

2）In **F SEt** interface, press MODE，not to make working parameter reset, enter into calibration para. Reset interface.

1）In **F CAL** interface, press W/A ENTER to reset calibration para., enter into reset all interface.

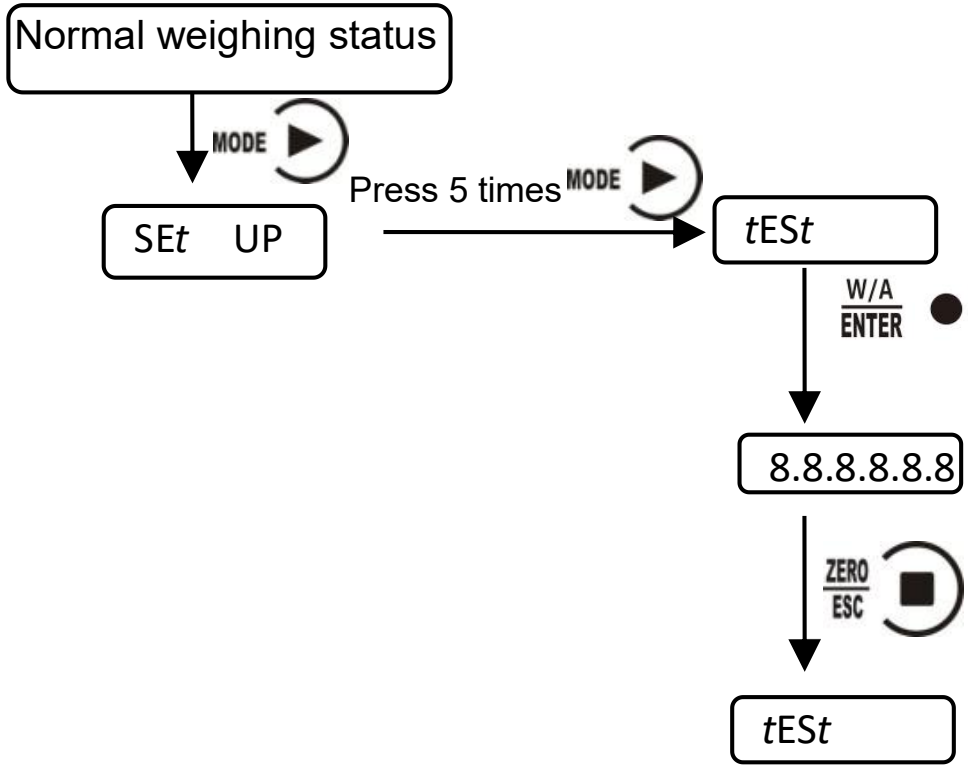
2） In **F CAL** interface, press MODE， not to make calibration para. reset, enter into reset all interface.

1）In **F ALL** interface, press W/A ENTER to make reset all of the parameters（including working para., calibration para., I/O etc..

Note: In all reset interfaces, press ZERO ESC to exit and return to weighing interface.

8 Display Testing

The following flow chart is to test lights on main-display and status lights.



Under parameter interface, press MODE to switch to"*t*ES*t*"interface.

Under"*t*ES*t*"interface,press W/A ENTER to make display testing, Nixie tube display and indicator lights all shine. Now if press W/A ENTER , display will sparkle.

After testing is finished, press ZERO ESC to return to"*t*ES*t*"interface.

9 Errors and Alarm Messages

Error ①Input error.

②wrong data beyond parameter range.

Error 2 The present weight value is out of zeroing range.

Error 3 Scale platform is not stable when zeroing.

Error 4 Input wrong password more than 3 times.

Error 5 Overlimit when tare.

Error 6 Weight value is not stable when tare.

OFL Weighing value is positive overflow.

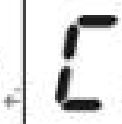
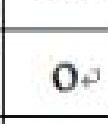
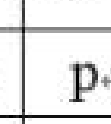
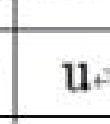
-OFL Weighing value is negative overflow.

10. Indicator model user-defined function

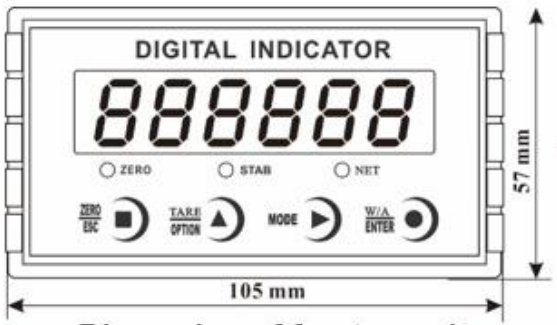
Long press MODE to display "LOGO" and enter the setting interface. Press ZERO to return to the setting menu

After saving, the next boot will show the newly edited model number.(ModbusTCP does not add a write function.)Add files such as "LogoSetupThread. C "and" logosetuthread. H ".

Displays character comparison table

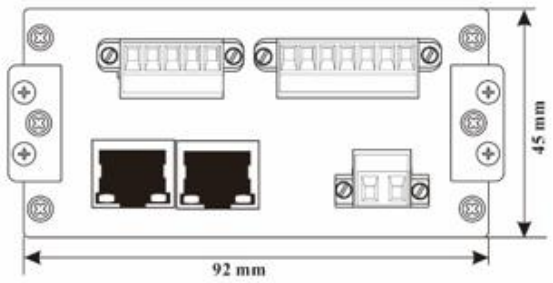
a	b	c	d	e	f	g	h	i	j	k	l	m
												
n	o	p	q	r	s	t	u	v	w	x	y	z
												

11 Dimension of Indicator



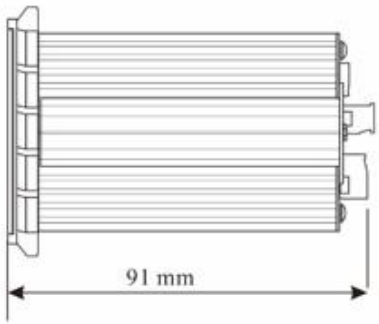
Dimension of front panel

（mm）：105×57



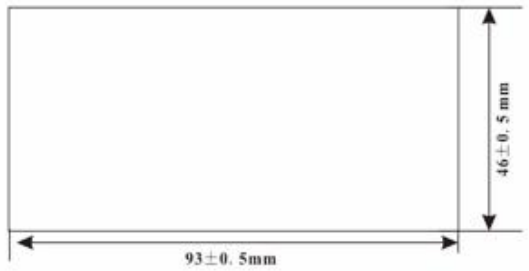
Dimension of rear panel

（mm）：92×45



Dimension of profile

（mm）：91



Mounting hole size

（mm）：93×46