



EXT203

Weight indicator manual

EXT203-9xxx1



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1. Basic Information

1.1. Features and Specifications

EXT203-N is a small weight display for industrial weighing design. The weighing display has the characteristics of compact size, stable performance and rich interface. It can be widely used in: Concrete mixing and asphalt mixture equipment、metallurgical blast furnace, converter and chemical industry, feed weight control and other occasions.

EXT203-N has the following basic features:

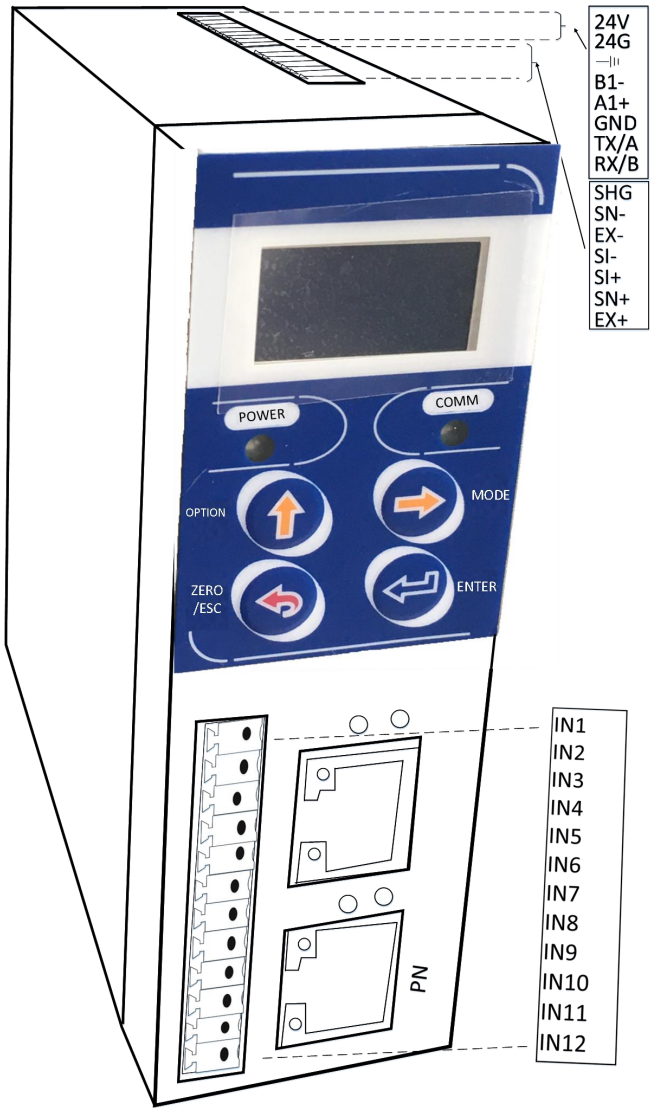
- Working voltage: DC24V
- Weighing channel: single channel
- Sensor: DC5V/6 wire resistance strain bridge weighing sensor.
- Switch quantity: 5 input /7 output
- Profinet: Standard, Profinet-I/O
- Serial port 1: Standard RS485 port. Support Modbus, RE protocol, etc.
- Serial port 2: Standard, adjustable serial port with RS485 and RS232 interfaces. All support Modbus and RE protocols.
- Installation method: DIN35 Buckle type installation
- Fully stainless steel casing

The detailed technical specifications are as follows:

Transducer Excitation	DC5V±10%/120mA Drive current/can receive eight Ω 350 specifications of the sensor
Adaptive Sensor Sensitivity	2mV/V or 3mV/V
Input Signal Range	0~15mV
Minimum Input	0.5uV/d

Sensitivity	
Nonlinearity	0.02%FS (3mV/V hour)
Zero Drift	$<0.5\mu\text{V}/^{\circ}\text{C}$
Gain Drifting	$<10\text{PPM}/^{\circ}\text{C}$
AD Rate	The highest is 960 Times/Seconds
Maximum Accuracy of Display	1/100000
Product Accuracy Grade	①①①
Working Voltage	DC24V (18V~30V compatibility)
Product Power Consumption	$<5\text{W}$
Operating Temperature Range	$-10^{\circ}\text{C}\sim 45^{\circ}\text{C}$
Storage Temperature	$-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$
Humidity	Within 90%RH (No Condensation)

1.2. Overall diagram



The front panel of the instrument is composed of liquid crystal display, 2 indicator lights and 4 keys.

The explanation is as follows:

indicator lights	
comm	When the serial port receives the instruction and responds to the indicator light once
power	Power-on constant light
buttons	
ZERO/ESC	Under the weight display, press this button to clear a zero operation. Long press this key to mark the current weight to zero. On other screens, press this button to exit the previous menu. In the parameter input interface, long press this key to clear the parameter to zero.
OPTION	Use to select a parameter in the parameter setting screen, or to enter a parameter value to increase the number by 1
MODE	It is used to enter parameter setting and calibration in the weighing interface, and also to select the cursor when entering parameter value
ENTER	Use to save the current Settings while a parameter is being set

1.3. Connection Port

Wiring ports are shown in the figure below:

24V	24G	—	B1-	A1+	GND	TX/A	RX/B	SHG	SN-	EX-	SI-	SI+	SN+	EX+
-----	-----	---	-----	-----	-----	------	------	-----	-----	-----	-----	-----	-----	-----

The wiring ports are described as follows:

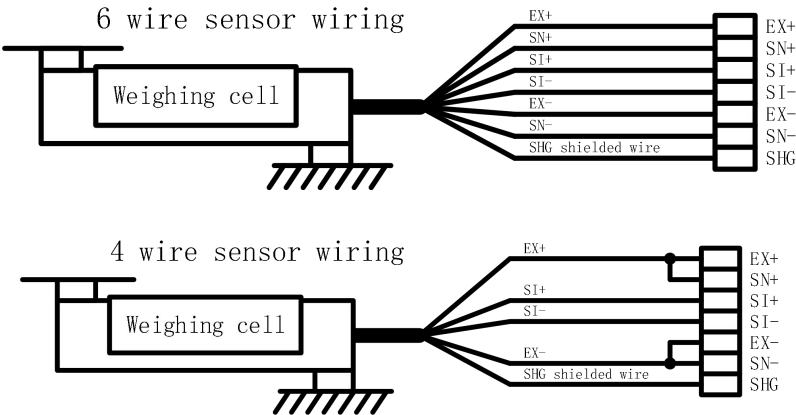
type	Interface	Instructions
power	24V	DC24V+
	24G	DC24V-
	EARTH	grounding
COMM (RS485)	B1-	RS485 B-
	A1+	RS485 A+
RS485/RS232	GND	GND pin of RS232 for adjustable serial port 2
	TX/A	Adjustable serial port 2, RS232 is TX when the switch is flipped, and RS485 is A+ when the switch is flipped
	RX/B	Adjustable serial port 2, RS232 is RX when the switch is flipped, RS485 is B- when the switch is flipped
sensor	EX+	Load Cell Excitation+
	SN+	Load Cell Sense+
	SI+	Load Cell Signal+
	SI-	Load Cell Signal-
	EX-	Load Cell Excitation-
	SN-	Load Cell Sense-
	SHG	Load Cell Shielded Wire

OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	IN1	IN2	IN3	IN4	IN5
------	------	------	------	------	------	------	-----	-----	-----	-----	-----

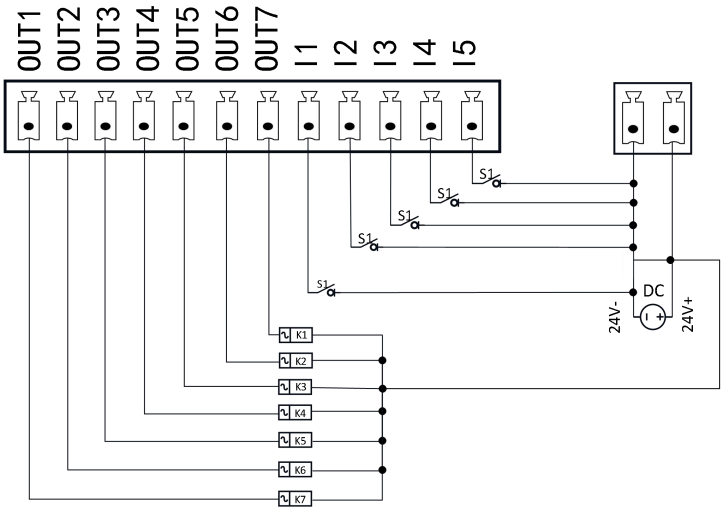
output	OUT1	Switching quantity output 1	User-defined
---------------	------	-----------------------------	--------------

			range 1
	OUT2	Switching quantity output 2	User-defined range 2
	OUT3	Switching quantity output 3	User-defined range 3
	OUT4	Switching quantity output 4	User-defined range 4
	OUT5	Switching quantity output 5	User-defined range 5
	OUT6	Switching quantity output 6	User-defined range 6
	OUT7	Switching quantity output 7	User-defined range 7
input	IN1	Switching quantity input 1	zero
	IN2	Switching quantity input 2	OFF
	IN3	Switching quantity input 3	OFF
	IN4	Switching quantity input 4	OFF
	IN5	Switching quantity input 5	OFF
network	net	If the ext203-N meter is used, the TCP interface is used. If the ext203-P meter is used, the PROFINET interface is used	
	PN interface	PROFINET interface, only ext203-P meter is valid	

1.3.1 Sensor wiring method



1.3.2 Wiring method of switching quantity

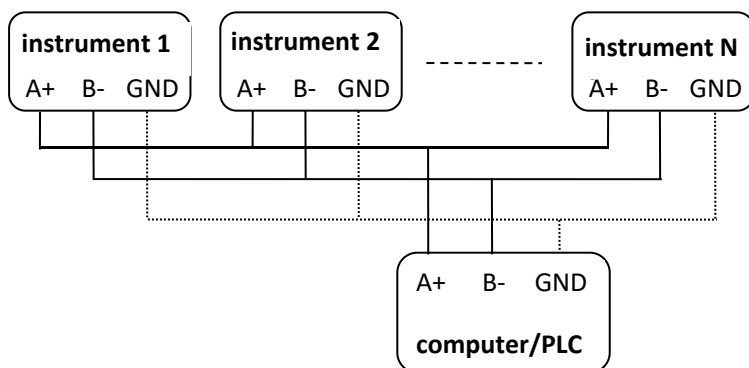


External circuit driven by input and output switching quantities should meet two main points:

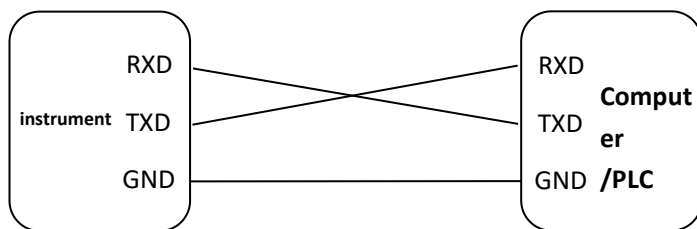
1. The external circuit shall be co-located with instrument;
2. Low level indicates that the output is valid, otherwise it is invalid.
3. When the external circuit inputs low power, it means that the input is valid; otherwise, it means that the input is invalid.

1.3.3 Serial port wiring method

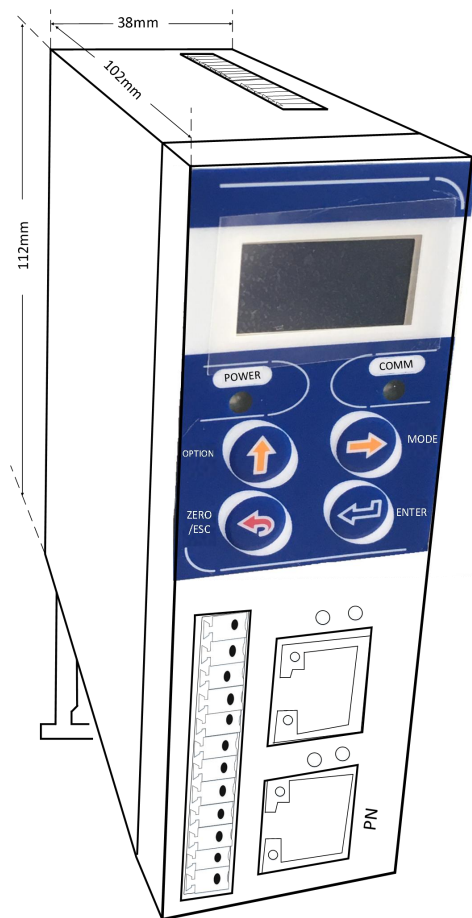
RS485 Wiring schematic:



RS232 Wiring schematic:



1.4. Mounting Dimension



DN35
High: 127mm

2. Working parameter setting

2.1. Parameter setting instructions

In the weighing state, press the key , after the setting page is

displayed, the cursor stops at 1 Working Parameter. Press  if the parameter password is enabled, enter the parameter password input state. If the password is disabled, enter the work parameter setting item directly, be careful when entering the parameter password. You must enter all six digits, even if they are all six zeros.

The default password before delivery is 000000, and the password switch is turned off by default.

2.2. Work parameter setting items

The following is the list of parameters. Please refer to Chapter 2 for details on how to modify a parameter.

number	parameter	instructions	initial value
1.1	Wt para	The first item of parameters (weight related)	
1.1.1	Power zero	Power on automatic zero switch. If the parameter is ON , then after power ON, if the zero clearing condition is satisfied, the meter will perform zeroing once.	OFF
1.1.2	Zero point	Zero tracking range (0~9d optional) .If there is a small weight on the scale that	0

		lasts less than the zero track range for a period of 2 seconds, a zero clearance is performed.	
1.1.3	Stab range	Stable range (1~9d optional)。	3
1.1.4	Stab time	Stable time (0.1~9.9s optional)。 The stability range and time are used together. When the weight changes less than the stability range within the stability time, it is considered to be stable.	0.5
1.1.5	Zero range	Zero range (00%~99% of the maximum range)。 If the current weight > maximum range * zero range, the meter prompts “ Wt over range ” to alarm.	50
1.1.6	Dig filter	Digital filtering: (0~9 optional) 0 :The weakest filtering; 9 :The strongest filtering,	3
1.1.7	Stab filter	The stable filtering: (0~9 optional) 0 : The weakest filtering; 9 : The strongest filtering,	0
1.1.8	AD Sampling	AD Sampling speed: 15PS: 15 times per second 30PS: 30 times per second 60PS: 60 times per second 120PS: 120 times per second 240PS: 240 times per second 480PS: 480 times per second	120PS
1.1.9	Zero zone	When the PLC mode is unloading and	10

		IO is defined as unloading function, if the weight is lower than the zero zone range, then wait for the unloading delay time, and then consider the unloading completed, and return to step 1, start the next PLC process;	
1.2	Comm para	Second parameter (comm related)	
1.2.1	S485	Standard RS485	
1.2.1.1	ID	Standard RS485 ID (01-99 Optional)	1
1.2. 1.2	Baudrate	Standard RS485 baud rate, 1200/2400/4800/9600/19200/38400/57600/115200 is optional	9600
1.2. 1.3	protocol	Standard RS485 communication protocol, RTU-H: modbus-RTU, with the high byte first RTU-L: modbus-RTU, with the lower byte first ASCII: Modbus - ASCII RECont: indicates that the packets are sent continuously in RE format RERead: The RE format is a command YHcont: for internal use	rtu-H
1.2. 1.4	Char format	Standard RS485 character format 7-E-1:7 data bits, parity, and 1 stop bit 7-O-1:7 data bits, odd check, 1 stop bit	8-N-1

		8-N-1:8 data bits, no parity bit, 1 stop bit 8-E-1:8 data bits, parity, 1 stop bit 8-O-1:8 data bits, odd check, 1 stop bit	
1.2. 1.5	Send speed	When P2.3 is RE and continuous transmission, this parameter is the continuous transmission speed of RS485 Auto: indicates the maximum speed 100 PS: 100 times per second 50 PS: 50 beats per second 25 PS: 25 times per second 20 PS: 20 times per second 10 PS: 10 times per second 1 PS: 1 time per second	Auto
1.2.2	232/485	The optional serial port comes as standard, and this serial port can be configured as RS232 or RS485	
1.2.2.1	ID	(01-99 ;(refer to 1.2.1.1	1
1.2. 2.2	Baudrate	Baud rate of Serial port 2 (see 1.2.1.2)	9600
1.2. 2.3	protocol	Serial Port 2 Communication protocol (refer to 1.2.1.3)	rtu-H
1.2. 2.4	Char format	Serial port 2-character format (for details, see 1.2.1.4)	8-N-1
1.2. 2.5	Send speed	Serial port 2 Continuous transmission speed (for details, see 1.2.1.5)	Auto
1.2.3	PN para	Profinet related	

1.2.3.1	MAC	MAC address offset, generally no need to set. If PN communication fails, you can set the MAC offset parameter of each device in the local network to different values	0
1.2.3.2	PN Ctrl IO	If enabled, PN can control the device's 5 input ports and 7 output ports.	off
1.3	Analog	The third major parameter category (related to analog signals)	<i>Para reserve d, current ly not suppor ted</i>
1.3.1	Out Mode	Analog output mode: 0–5V, 0–10V, 4–20mA, 0–20mA, 0–24mA, User set U; User set I	
..2	Minimum Output	Minimum output (–1.000 ~ 27.000)	
..3	Zero Point Output	Zero point output (–1.000 ~ 27.000)	
..4	Full- Scale Output	Maximum scale output (–1.000 ~ 27.000)	
...5	Maximum Output	Maximum output (–1.000 ~ 27.000)	
1.4	User Storage	THREE item of parameter (user memory)	
1.4.1 ~ 1.4.9	Storage1~9	Storage 1 to 9 (each Storage unit can write for 50,000 times)	0
1.5	password	The FOURTH item of parameter (parameter password)	
1.5.1	switch	Parameter setting password switch	OFF

1.5.2	modify	Parameter password, enter the same password twice, press OK to save as a new password	0
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1) Continuous mode in RE communication format:

When **P1.2.1.3** or **P1.2.1.8** is **RECONT** in the working parameter setting is RECONT. The data format is as follows:

Meter response:

state	,	GS	,	symbol	DDDDDDD	unit	CR	LF
-------	---	----	---	--------	---------	------	----	----

among:

state — two, **OL: (4FH 4CH)** overflow

ST: (53H 54H) stable

US: (55H 53H) unstable

, — **2C (HEX)**

symbol — **+** (2BH); **-** (2DH)

unit — **20H 67H(g), 6BH 67H(kg), 20H 74H(t),6CH 62H(lb).**

CR — **(0DH)** enter

LF — **(0AH)** newline

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

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

The current status is stable, the data value is positive, and the displayed value is

11.120kg

2) Command mode in RE communication format:

When **P1.2.1.3** or **P1.2.1.8** is **REREAD** in the working parameter setting is RECONT. The data format is as follows:

R	E	A	D	CR	LF
---	---	---	---	----	----

among:

R — (52H)

E — (45H)

A — (41H)

D — (44H)

CR — (0DH) enter

LF — (0AH) newline

The data frame returned by the instrument in response is the same as the data frame returned by the RE protocol in continuous mode. For details, see the Description of Data Frame Returned in Continuous Mode.

3) rtu-H/ rtu-L/ ASCII

Modbus address table is required for the three protocols. If necessary, please contact our salesman.

4) YHCont continuously send:

The data is output by ASCII code, and each frame consists of 8 groups of data (including the decimal point). Each frame of data is separated by a group of "=". For example, if the weight is 70.15, the string "51.0700 =" will be sent consecutively.

3. Weight Calibration

3.1. Calibration instructions

Any changes in the structure of the meter or scale for the first time, or if you change the sensor, a weight calibration operation should be performed.

3.2. Calibration with weights

3.2.1 Calibration

In the weighing state, press the key  twice, the cursor stays in the "2 calibration" item. Press  to enter the calibration password input state.

When the password is entered, the password input interface is displayed as shown on the right:

password
0-----

There are two points to pay attention to when you enter your password. One is that you must enter a 6-digit password. Even if the password is all zeros, you have to enter six zeros. Second, the password is entered for three times at most, after three attempts, the password is still not correct, the meter will be locked, the main display displays Password mistake after the meter is locked, it can only be unlocked by re-energizing the meter.

The factory default password is "000000".

After entering the correct password, the calibration setting interface is entered

The menu is as follows:

number	parameter
2	Calibration
2.1	Point set
2.2	Unit Set
2.3	min-div set

2.4	Max range
2.5	Loadcell vol
2.6	Zero cal
2.7	Gain cal
2.8	Serial cal
2.9	Cal PSW set

3.2.2 Sett point

After entering the decimal point Settings, the current decimal point Settings are displayed.

Press the key  &  to select the desired decimal position,

press  to hold Settings and switch to the next item, press  do Not Save Settings and return to the calibration setting interface. The menu is as follows:(the unit set is same as point)

number	minimum indexing value	instrument shows
①	0	"0"
②	1	"0.0"
③	2	"0.00"
④	3	"0.000"
⑤	4	"0.0000"

3.2.3 Set min-div

After entering the minimum indexing setting, the current minimum indexing setting is displayed to select the required minimum indexing,

press  to keep the Settings and return to the calibration Settings

screen, Press  not to save the setting and return to the calibration setting interface. The minimum indexing menu is as follows.

number	minimum indexing value	instrument shows
①	1	"ld= 01"
②	2	"ld= 02"
③	5	"ld= 05"
④	10	"ld= 10"
⑤	20	"ld= 20"
⑥	50	"ld= 50"

3.2.4 Max-range

Current weight value > (maximum range + 10 ld), the meter indicates overflow.

After entering the maximum range, the meter displays the maximum range set last time, and the leftmost digit flashes, at this point

you can use  and  modify the maximum range Settings, press



keep the Settings and return to the calibration Settings screen,

Press  not to save the setting and return to the calibration setting interface.

3.2.5 Sensor test

Under the loadcell Voll interface, the meter displays the current millivolt, Under this interface, it can test whether the sensor signal is normal or not, and whether the scale body has four Angle error, etc.

When the sensor signal is too small, the instrument displays “-ADOFL”; When the sensor signal is too large, the meter displays “ADOFL”.

To check for four-angle errors on the scale, place the same standard weight on each of the four corners of the platform and record the millivolt response each time. If the four angles have different millivolts, then there is a four-angle error, then adjust the structure so that the four angles have the same millivolts.

Press  and  return to the calibration setting screen zero calibration.

3.2.6 Zero Clb

The function of zero calibration is as follows:

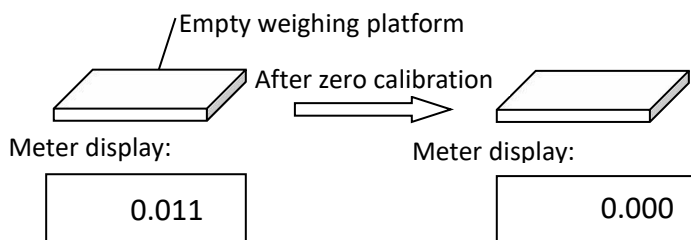


Figure: The role of zero calibration

When the instrument is installed for the first time or the replacement

of the sensor, the need for zero calibration, zero calibration is actually to let the instrument to empty scale when the sensor voltage is recorded as zero.

There are two methods for zero calibration. The first is to empty the platform, and then the actual number of millivolts as zero, this method is called with weight calibration zero, the second method is to input the historical millivolt and set it to zero. This method is called the input millivolt calibration zero. The following describes the two operation methods of zero calibration:

3.2.6.1 Zero calibration

After entering the zero point calibration interface, the instrument displays the current millivolt, for example, the meter display indicates that the current millivolt is 2.203 millivolts, empty the scale, wait for the stability indicator to light, then press  ,mark 2.203 mV as zero, and then automatically return to the calibration setting interface.

3.2.6.2 Input millivolt Zero calibration

After entering the zero point calibration interface, the instrument displays the current millivolt, For example, the instrument display indicates that the current mV is 2.203 mV. If instead of using the currently displayed millivolt as the zero, instead of using the input millivolt as

the zero, Then press the key  the main display will change to the millivolt input interface as shown on the right:

SV is the current millivolt number, at this time input zero millivolt

2.6	zero
calibration	
000.000 mV	
SV: 2.203mV	

number, and then press  save and complete the zero calibration without weight, and return to the calibration setting interface

3.2.7 Gain calibration

The function of gain calibration is shown as follows:

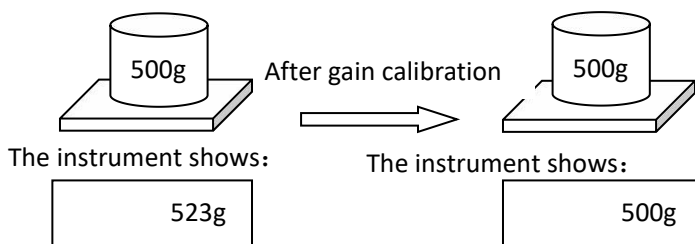


Figure: The role of gain calibration

Gain calibration actually allows the meter to remember the relationship between weight and millivolt. Gain calibration should be performed the first time a meter is used or when a sensor is changed. There are also two ways to calibrate the gain. The first is the gain calibration with weights. As the name implies, the actual weight calibration gain is placed on the scale platform. The use of the gain with weights must first go through the zero calibration with weights; The second is the input millivolt gain calibration, which inputs the historical weight and millivolt into the meter for gain calibration. The following is the operation process of the two calibration:

3.2.7.1 Gain calibration

After entering the gain calibration interface, the meter displays the current gain millivolt ($\text{gain millivolt} = \text{current millivolt} - \text{zero millivolt}$). For example, the meter indicates that the current gain is 0.225 mV

(Generally speaking, if the zero-crossing calibration with weights is carried out, the gain millivolt is generally 0 when the gain calibration with weights is entered.)

Place the standard weight on the weighing table and wait for the gain millivolt to stabilize. When the stability indicator is on, press the key



, at this point, the meter switches to the gain weight input interface. After entering the weight of the weight of the weight, press



the key to save the gain calibration and return to the calibration Settings screen.

3.2.7.2 Input millivolt gain calibration

After entering the gain calibration interface, the meter displays the current gain millivolt (gain millivolt = current millivolt - zero millivolt), for example, the meter show the current gain is 0.225 mV (Generally speaking, if the zero-crossing calibration is carried out with the weight, the gain millivolt is generally 0 when entering the gain calibration with the weight.)

If you want to manually enter the millivolt calibration gain, you can press . Switch the meter to the gain millivolt input interface, As shown in the picture below:

2.7 Gain cal
000.000mV

SV: 0.225mV

SV is the current millivolt, after the gain millivolt input is completed press  the instrument switches to the gain weight input interface, after the input gain weight is completed press  save and complete the gain calibration without weight, and return to the calibration setting interface.

3.2.8 Serial port calibration switch

Enter the serial port calibration switch setting, Instrument display ① off, ② on, when the selection of open to allow the serial port to modify the calibration parameters, otherwise the serial port can not calibrate and modify the calibration parameters.

3.2.9 Calibration password change

Enter the calibration password change, the instrument display as shown on the right:

2.9 Cal PSW set
0-----

Note that when entering a password, you must enter a 6-digit password. Even if the password is all zeros, you must enter 6 zeros. The two input passwords must be consistent. If inconsistent, the first input will be returned and re-input. After successful input, save the password to enter the calibration setting password interface and return to the calibration setting interface

3.3. No Wt Clb

3.3.1 Entry without weight calibration

In the weighing state, press the key  three times, The main display cursor stops at "3 no weight calibration". press  to enter the no-weight calibration password input state.

The password input screen is displayed when the password is entered :0— — — — —, there are two points to pay attention to when you enter your password. One is that you must enter a 6-digit password, Even if the password is all zeros, you have to enter six zeros; The second is to enter the password for three times at most, after three attempts, the password is still not correct, the meter will lock. The main display shows password mistake after the meter is locked, it can only be unlocked by re-energizing the meter.

The factory default password is "000000".

After entering the correct password, enter the decimal point Settings.

The following calibration (decimal point/decimal point/range/millivolt display) with the weight calibration, this is not to repeat. After zero calibration, press "OK" button to complete zero calibration when "OX.XXX" is displayed, then switch to the next item of "Sensor Sensitivity Input", which will start from the sensor sensitivity input steps:

3.3.2 Sensor sensitivity input

After entering the sensor sensitivity input interface, the meter

displays the current sensor sensitivity. For example, instrument display 的 7/5000 .The sensor sensitivity is 2.0000MV/V 。 Find the sensitivity provided on the sensor certificate and enter the value into the meter.

When completed, press the key  to save the parameters and automatically switch to the sensor range input.

3.3.3 Sensor range input

After entering the sensor range input, the meter first displays the sensor range last set, and the leftmost digit blinks. At this point, you can

use  and  to modify sensor range Settings. Press  hold setting and return to the calibration Settings screen.

The serial port calibration switch setting and the subsequent password setting shall be set in the follow-up setting with the serial port calibration switch with the weight calibration, which will not be repeated here.

4. I/O

The meter has five inputs and seven outputs. Both input and output can be defined. Under the weight display interface, press the key  four times, Until the main display cursor stops at "4 switch quantity", press the key  to enter the input and output definition, if the password is open, you need to enter the correct password to access the next level menu.

When leaving the factory, the password is "000000", the password switch is off.

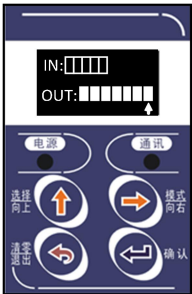
The menu is as follows:

I/O			
num	para	instructions	default value
4.1	I/O Def		
4.1.1	IN1	Select the definition of switch quantity input, optional: Off: disables and does not perform any operation Zero: indicates that the system is cleared once Run: Start the PLC	zero
4.1.2	IN2		OFF
4.1.3	IN3		OFF
4.1.3	IN4		OFF
4.1.3	IN5		OFF
4.1.4	OUT 1	Select the definition of the switch quantity output, optionally:	Custom range 1

4.1.5	OUT 2	"①OFF", "②stab ", "③zero ",	Custom range 2
4.1.6	OUT 3	"④OFL ", "⑤zero Area", "⑥Preset range 1",	Custom range 3
4.1.7	iOUT 4	"⑦Preset range 2", "⑧Preset range 3", "⑨Preset range 4",	Custom range 4
4.1.8	OUT 5	"⑩Preset range 5", "⑪Preset range 6", "⑫Preset range 7",	Custom range 5
4.1.9	OUT 6	"⑬PLC Fast", "⑭PLC Med", "⑮PLC Slow",	Custom range 6
4.1.10	OUT 7	"⑯PLC result hold", "⑰PLC disc", "⑱Custom range 1", "⑲Custom range 2", "⑳Custom range 3", "21 Custom range 4", "22 Custom range 5", "23 Custom range 6", "24 Custom range 7",	Custom range 7
4.2	I/O test		
Please see the picture below for detailed description			
4.3	password		
4.3.1	Passwo	Parameter Setting Password	OFF

	rd switch	switch	
4.3.2	Password change	To change the password, enter the same password twice and press OK to save the new password	000000

Note: An illustration of the output type is shown below:



As shown IN the figure above: IN: IN is the input test port. The 5 squares from left to right are IN1,IN2,IN3,IN4,IN5

OUT: OUT is the output test port. The 7 squares from left to right are

OUT1,OUT2,OUT3, OUT4, OUT5, OUT6, OUT7 in turn,  is moving

the cursor,  is a valid and invalid state switch

□: effective ■: invalid

5. Preset range

Under the weight display interface, press the key  five times, Until the main display cursor stops at "5 preset range ", press the key  to enter the preset range related parameter setting, if the password is open, you need to enter the correct password to access the next level menu.

When leaving the factory, the password is "000000", the password switch is off.

The menu is as follows:

Preset range			
number	parameter	instructions	default
5.1	Stab switch	For weight comparison, determine stability, off/on optional: Off: Not judged On: stability	OFF
5.2	Mini out time	Output holding time: When the conditions are met, the output holding time of the switch quantity is set from 0.0 to 99.9 (unit: s).	0
5.3	preset point	The number of preset points and preset points together determine the preset point	6

		range	
5.4	Preset 1	Setting range: maximum range ~99999	0
5.5	Preset 2	Number of preset points =1: Preset points 1234 have no comparison	0
5.6	Preset 3	Number of preset points =2: Preset point 1 < preset point 2	0
5.7	Preset 4	Number of preset points =3: preset point 1 < Preset point 2 < preset point 3	0
5.8	Preset 5	Number of preset points =4: preset point 1 < preset point 2 < preset point 3 < preset point 4	0
5.9	Preset 6	Number of preset points =5: preset point 1 < preset point 2 < preset point 3 < preset point 4 < preset point 5	0
		Number of preset points =6: preset point 1 < preset point 2 < preset point 3 < preset point 4 < Preset point 5 < preset point 6	
5.10	password		
5.10.1	Password	Parameter Setting Password switch	OFF

5.10.2	Modify	To change the password, enter the same password twice and press OK to save the new password	
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Note: When the preset point output function is used, the corresponding output switch quantity needs to be defined. For details, see Switch quantity Input and Output.

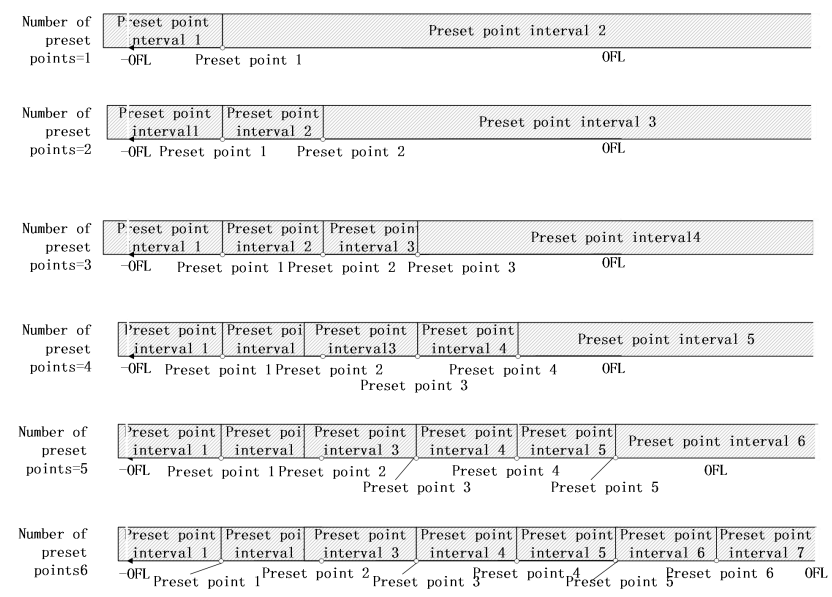


Figure 6-0

Preset point interval 1: valid when the weight is less than preset point 1 (-OFL < weight < preset point 1)

Preset point interval 2: valid when the weight is equal to preset point 1 and less than preset point 2. Note that if preset point 1 = preset point 2,

preset point interval 2 is invalid

(preset point 1 = weight < preset point 2)

Preset point interval 3: valid when the weight is equal to preset point 2 and less than preset point 3. Note that if preset point 2 = preset point 3, preset point interval 3 is invalid

(preset point 2 = weight < preset point 3)

Preset point interval 4: valid when the weight is equal to preset point 3 and less than preset point 4. Note that if preset point 3 = preset point 4, preset point interval 4 is invalid

(preset point 3 = weight < preset point 4)

Preset point interval 5: If the weight is greater than or equal to preset point 4, it is valid. Note that if preset point 4 = preset point 5, preset point interval 5 is invalid

(preset point 4 = weight < preset point 5)

Preset point interval 6: If the weight is greater than or equal to preset point 5, it is valid. Note that if preset point 5 = preset point 6, preset point interval 6 is invalid

(preset point 5 = weight < preset point 6)

Preset point interval 7: when the weight is greater than or equal to the preset point 6 is effective

(preset point 6 = weight < OFL)

Note: There is a size relationship between preset points 1~6. When an error is reported when setting the preset point value, please set the larger value of the preset point first.

6. PLC model

Under the weight display interface, press the key  six times until the display cursor stops at 6 PLC mode, press the key  to enter PLC mode, if the password is opened, you need to enter the correct password to enter the next level menu.

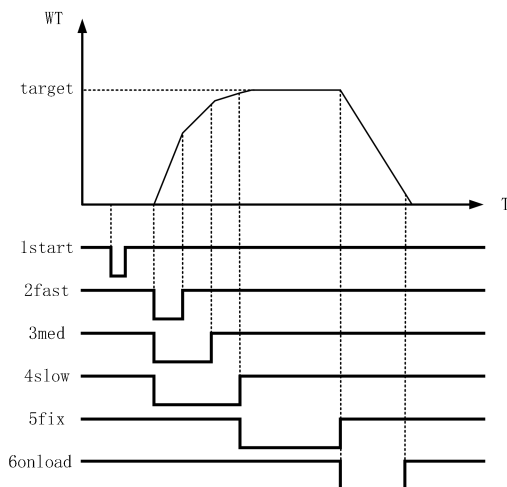
When leaving the factory, the password is "000000", the password switch is off.

Packaging parameter Setting			
number	parameter	instructions	initial
6.1	Target set	Target value setting, 0 ~the maximum range	0
6.2	Fast Feed	Fast feed setting, 0~ target value; When the weight value $\geq$ target - Fast feed , Shut down fast and activate med (Note: fast >med>slow, when set to 0, close the fast)	0
6.3	Med Feed	med feed setting, 0~ target value; When the weight value $\geq$ target - med feed , Shut down med and activate slow (Note: fast >med>slow, when set to 0, close the fast)	0
6.4	Slow Feed	slow feed setting, 0~ target value; When the weight value $\geq$ target -	0

		slow feed, Shut down slow. (Note: fast > med > slow, when set to 0, close the slow) .	
6.5	Out mode	Packing mode: ① combined output / ② independent output is optional. Please see the introduction of combined output and independent output below for details	①
6.6	Min out time	Output hold time: When the conditions are met, the output hold time ranges from 0.0 to 99.9 (unit: s).	0.5
6.7	Res hold time	Fixed holding time: when the PLC ends small casting, fixed output holding time, setting range: 0.0~99.9 (unit: s)	0.5
6.8	Disc Dly time	Unloading delay time: when the PLC is finished setting the value, the instrument will start unloading output until the weight is less than zero zone, and the unloading output will keep the unloading delay time. When the time is over, the unloading will be closed. Setting range: 0.0~99.9 (unit: s)	0.5
6.9.1	Password set	Parameter Setting Password switch	OFF
6.9.2	modify	To change the password, enter the	

		same password twice and press OK to save the new password	
--	--	--	--

Note: When using the simple packaging function, it is necessary to define the IO quantity. For details, see the IO quantity.



PLC simple packaging process description:

1. Start and run;
2. Determine the running status based on the current weight.
 If the weight value $\leq$ target value – fast feed, output fast and start slow output time. During the minimum output time, the weight is not judged.
 If the target value – fast feed $\leq$ when the weight value $\leq$ target value – med feed, output the med and start the slow output time, and do not make weight judgment during the minimum output time.
 If target value-med feed $\leq$ weight value $\leq$ target value-slow feed, Output slow and start the minimum output time, do not make weight judgment in the minimum output time;

If the target value - small weight advances $\leq$ current weight, skip 3 and go directly to 4;

If the target value - slow feed $\leq$ current weight, skip 3 and go directly to 4;

3. After the minimum output time is over, check the weight

When weight value $\geq$ target value -fast feed, close fast and enter med.

When weight value $\geq$ target value -med feed, close med and enter slow.

When weight value $\geq$ target value - slow drop value, close the slow, end the feeding process,

4. Start PLC fixed value output and [6.7 Fixed value Holding time].

After the fixed value holding time is over, close PLC fixed value and output PLC unloading signal;

5. When the weight is less than zero zone, start the unloading delay time. When the delay time reaches, stop unloading. Complete a simple packaging process.

Influence of combined output mode and independent output mode on switching quantity defined as PLC:

Combined output mode

fast: PLC fast, PLC med, PLC slow

med: PLC med, PLC slow

slow: PLC slow

Independent output mode fast: PLC fast

med: PLC med

slow: PLC slow

7. Custom Range

On the weight display interface, press the key  seven times until the main display cursor stops at "7 Custom", and press the key  to enter the parameter setting of custom interval. If the password is opened, you need to enter the correct password to enter the next-level menu.

Factory time, the password is "000000", password switch is off state.

The menu list is as follows:

Custom range			
num	parameter	instructions	value
7.1	Custom. 1		
7.1.1	out type	4 types of output : (For the description of output types, see the interval diagram outside the table.) Note: When output type ④ P1 to P2 or ⑤ < P1 > P2, P2 must be greater than P1, or the custom will have no output ① Off: shut down the output; ② -OFL to P1: the output is effective when the weight is between the set value of P1 and minus infinity;	P2~OFL

		③ P2 to OFL: the output is effective when the weight is between P2 set value and positive infinity; ④ P1 to P2: the weight output is effective when the P1 set value is to P2 set value; ⑤ $< P1 \mid > P2$: the output is valid when the weight is less than P1 or greater than P2	
7.1.2	P1 set	P1 set value, 0~99999 (When the output type is ④ ⑤, need $P1 < P2$)	0
7.1.3	P2 set	P2 set value, 0~99999 (When the output type is ④ ⑤, need $P1 < P2$)	100
7.1.4	Motion SW	For weight comparison, determine stability, off/on optional: Off: Not judged Open: stability	OFF
7.1.5	out time	Output holding time: When the conditions are met, the output holding time of the switch quantity is set from 0.0 to 99.9 (unit: s).	0
7.2	Custom interval 2		
7.2.1	out type	The same as Custom 1 output	-OFL~P1

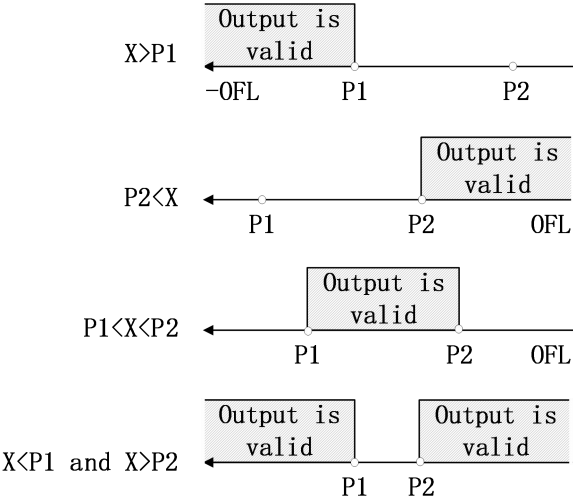
		port Settings	
7.2.2	P1 set	The same as Custom 1 output port Settings	10
7.2.3	P2 set	The same as Custom 1 output port Settings	0
7.2.4	Motion SW	The same as Custom 1 output port Settings	OFF
7.2.5	out time	The same as Custom 1 output port Settings	0
7.3	Custom interval 3		
7.3.1	out type	The same as Custom 1 output port Settings	Off
7.3.2	P1 set	The same as Custom 1 output port Settings	0
7.3.3	P2 set	The same as Custom 1 output port Settings	0
7.3.4	Motion SW	The same as Custom 1 output port Settings	OFF
7.3.5	out time	The same as Custom 1 output port Settings	0
7.4	Custom interval 4		
7.4.1	out type	The same as Custom 1 output port Settings	OFF
7.4.2	P1 set	The same as Custom 1 output port Settings	0
7.4.3	P2 set	The same as Custom 1 output port Settings	0

7.4.4	Motion SW	The same as Custom 1 output port Settings	OFF
7.4.5	out time	The same as Custom 1 output port Settings	0
7.5	Custom interval 5		
7.5.1	out type	The same as Custom 1 output port Settings	OFF
7.5.2	P1 set	The same as Custom 1 output port Settings	0
7.5.3	P2 set	The same as Custom 1 output port Settings	0
7.5.4	Motion SW	The same as Custom 1 output port Settings	OFF
7.5.5	out time	The same as Custom 1 output port Settings	0
7.6	Custom interval 6		
7.6.1	out type	The same as Custom 1 output port Settings	OFF
7.6.2	P1 set	The same as Custom 1 output port Settings	0
7.6.3	P2 set	The same as Custom 1 output port Settings	0
7.6.4	Motion SW	The same as Custom 1 output port Settings	OFF
7.6.5	out time	The same as Custom 1 output port Settings	0
7.7	Custom interval 7		

7.7.1	out type	The same as Custom 1 output port Settings	OFF
7.7.2	P1 set	The same as Custom 1 output port Settings	0
7.7.3	P2 set	The same as Custom 1 output port Settings	0
7.7.4	Motion SW	The same as Custom 1 output port Settings	OFF
7.7.5	out time	The same as Custom 1 output port Settings	0
7.8	password		
7.8.1	switch	Parameter Setting Password switch	OFF
7.8.2	Modify	To change your password, enter the same password twice and press OK to save it as a new password	000000

Note: When you use the custom interval output function, you need to define the corresponding output switch. For details, see Switch Input and Output.

Note: An illustration of the output type is shown below



8. ProfiNet Protocol

EXT203 supports the Profinet-IO communication protocol. The data content sent and received by the device is as follows.。

8.1. Data Sent from PLC to the Device

The data sent from the PLC to the EXT203-P device consists of 6 words QW1~QW6, as shown in the table below::

Receive				
QW1	Refresh Output		Output 1-7	Reserved
	bit15		bit14~bit8	bit7~bit1
QW2	Start R/W	R/W	Data num	Data Start Address
	bit15	bit14	bit13~bit12	bit11~bit0
QW3	Data 1 (0~15)			
QW4	Data 2 (0~15)			
QW5	Data 3 (0~15)			
QW6	Data 4 (0~15)			

The following is a detailed description of QW1~QW6:

8.1.1. QW1

QW1	Refresh Output	Output 1-7	Reserved	Zero
	bit15	bit14~bit8	bit7~bit1	bit0

Refresh Output — — When this bit is set to 1, change the output

status; when 0, maintain the previous output status。

Output 1-7 ----- Each bit from low to high represents an output status. For example, bit8 is OUT1, bit9 is OUT2, and so on; change the corresponding output according to the bit value when sending (this function only takes effect after the "PN Control IOK Switch" is turned on)

Reserved ----- Reserved for future use, please set to 0.

Zero ----- Execute a zero reset operation when the bit changes from 0 to 1

8.1.2. QW2

QW2	Start R/W	R/W	Data num	Data Start Address
	bit15	bit14	bit13~bit12	bit11~bit0

Start R/W----- Execute a read or write command when the bit changes from 0 to 1.

R/W----- When equal to 0, it is a read operation. The device returns data starting from the "Data Start Address" with a length specified by "Data num".

When equal to 1, it is a write operation. The device writes the data content from QW3~QW6 into the device memory starting at the "Data Start Address". The number of words written is determined by "Data num".

Data num----- 0 represents 1 word; 1, 2, 3 represent 2, 3, 4 words respectively. Used in conjunction with "R/W" and "Data Start Address".

Example::

"R/W" is 0, "Data Start Address" is 0, "Data num" is 3, meaning reading 4

words of data starting from device memory address 0.
"R/W" is 1, "Data Start Address" is 0, "Data num" is 1, meaning writing the data from QW3 and QW4 into the device memory starting at address 0 for a count of 2 addresses (i.e., addresses 0, 1).

Data Start Address----- Used in conjunction with "R/W" and "Data num". Specifies the starting address for reading from or writing to the device.

8.1.3. QW3~QW6

QW3	Data1 (0~15)
QW4	Data 2 (0~15)
QW5	Data 3 (0~15)
QW6	Data 4 (0~15)

Data content, only used when "R/W" is 1, in conjunction with "Data Start Address" and "Data num" to perform write operations。

8.2. Data Sent from the Device to PLC

The data sent from the EXT203-P device to the PLC consists of 8 words IW1~IW8, as shown in the table below:

Send									
IW1	Reserved	Output Success	Input	Decimal Point	AD Status	Zero	Minus	Zero Point	Overflow Status

	bit15	Bit14	bit13~bit9	bit8~bit6	bit5	bit4	bit3	bit2	bit1	bit0
IW2	R/W Success			R/W			Data num	Start Address		
	bit15			bit14			bit13~bit12	bit11~bit0		
IW3	Data 1 (0~15)									
IW4	Data 2 (0~15)									
IW5	Data 3 (0~15)									
IW6	Data 4 (0~15)									
IW7	Data H (0~15)									
IW8	Data L (0~15)									

8.2.1. IW1

IW1	Reserved	Output Success	Input 1~5	Decimal Point	AD Status	Zero	Minus	Zero Point	Overflow	Status
	bit15	bit14	bit13~bit9	bit8~bit6	bit5	bit4	bit3	bit2	bit1	bit0

Reserved ----- Reserve position.

Output Success ----- This bit is 1 when the output has been successfully executed as per the command.

Input 1-5 ----- Each bit from low to high represents an input status. For example, bit9 is OUT1, and so on.

Decimal Point ----- Indicates the current weight decimal point position.

AD Stab ----- When set to 1, it indicates AD is unstable.

Zero ----- When set to 1, it indicates the weight has reached the zero zone value.

Minus ----- When set to 1, it indicates the weight is negative.

Zero Point ----- When set to 1, it indicates the weight is zero.

Overflow ----- When set to 1, it indicates weight overflow.

Stab ----- When set to 1, it indicates the weight is unstable

8.2.2. IW2

IW2	R/W Success	R/W	Data num	Data Start Address
	bit15	bit14	bit13~bit12	bit11~bit0

R/W Success ----- This bit is 1 when the read or write command has been executed successfully.

The other three (R/W, Data num, Data Start Address) are the same as the data sent from the PLC to the device (i.e., the content corresponding to QW2).

8.2.3. IW3~IW6

IW3	Data 1 (0~15)
IW4	Data 2 (0~15)
IW5	Data 3 (0~15)

IW6	Data 4 (0~15)
-----	---------------

When the PLC sends a read command to the device, the device returns data through these 4 words.

8.2.4. IW7~IW8

IW7	Weight High 16 bits
IW8	Weight High 16 bits

IW7 and IW8 together form a 4-byte signed long integer ID7. ID7 is the weight value (note this weight value only includes the sign, not the decimal point).

9. Parameters of the reset

Reset is used to reset a function to its factory default state. Here's how he does it:

Parameter Reset Function		
8.1	Reset of working parameters	Restore the working parameter item to its initial value
8.2	Calibration reset	Restore the working parameter item to its initial value
8.3	I/O reset	Restore the working parameter item to initial value (including PLC mode, preset point, custom reset)
8.4	PLC mode reset	Restore the working parameter item to its initial

		value
8.5	Reset all parameters	Restore everything to its original value (retain password Settings)

10. Warring

The following is the alarm information that may appear on this meter, and how to deal with it.

warring	instructions	solution
Wt is not stab	Reset unstable alarm, when the unstable press the reset key	Make sure it is stable and then reset to zero, or modify the stabilizing time and stabilizing range to appropriate values
Wt over range	Clearing zero out of range	Make sure the zeros are within the range, or change the zeros to an appropriate value
Clb is not stab	The calibration of zero is unstable	Please ensure that the scale is stable after the calibration of zero
-OFL	Negative spillover	Check whether the sensor signal is too small or whether the weight value exceeds the negative maximum scale range
OFL	positive spillover	Check whether the sensor is

		overloaded or whether the weighing value exceeds the maximum range
-ADOFL	The sensor signal is too low	Check the sensor and force transfer mechanism
ADOFL	The sensor signal is too high	Check the sensor and force transfer mechanism
Must 6 digits	The password contains less than 6 characters	Please enter a 6-digit password
Not same	The password entered is inconsistent with the second password entered	The first input of the password is different from the second input
Vol must stab	The calibration gain is unstable	Please make sure the scale is stable before calibrating the gain