Weighing Controller Manual Instruction

AD2015E

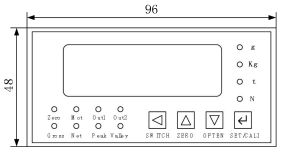
The display controller is faster in the same price range, up to 1280 seconds / time. At the same time, customers can choose to add TEDS, analog and communication functions based on the basic model during the selection process. The comparator of this controller is also flexible, and the comparison method is various, and the user can build the comparison mode by himself.

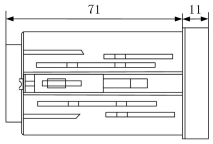
1.Specifications

Supply voltage	DC：12V--30V
Input Sensitivity	0.4mV/V~6mV/V
Display Window	Single row 5-position
Incentive Voltage	5VDC±2%, 100mA （up to 6 350Ω sensors connection in parallel）
A/D Performance	24bits, Delta-Sigma method
Display precision	1/10000
Output speed	10 、40、640、1280times/second
Working temperature	-30℃~ 60℃
Voltage resistance	One minute in 2000V AC50/60Hz
Protection level	IP65（The front part pf product）
Surrounding environment	Temp.：-10~55℃；Storage -25~65℃ Humidity：35~85%RH； storage 35~85%RH
Switch value	2-point relay output, 250VAC/3A Resistive load

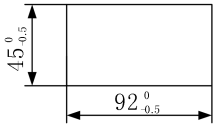
2.Installation

Panel size





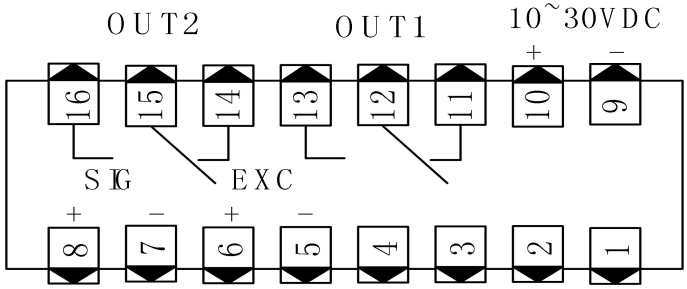
Hole Cutoff panel



3. Wiring

3.1 Terminal configuration (ports 1, 2, 3, and 4 are based on user-selected models**)**

Relay output:

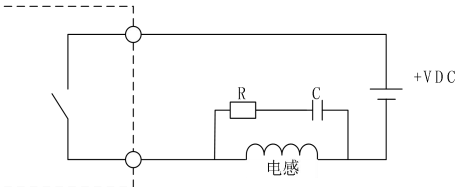


This instrument can use relay or transistor output. When using relay output, since the relay output can be connected to DC load and AC load, there is no internal protection

■ **DC relay protection**

The resistor / capacitor network is applied to the low voltage (DC30V) DC relay circuit, which is

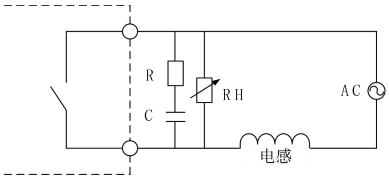
connected to the load to form a DC relay protection circuit driven by the relay DC load, as shown below:



Note: The external power supply VCC range in the above figure is 10 ~ 30VDC

■ **AC relay protection**

When using an AC relay to control the load, it is recommended to add a variable resistor across the AC relay to protect it, as shown in the following figure:



3.2 Connection of load cell

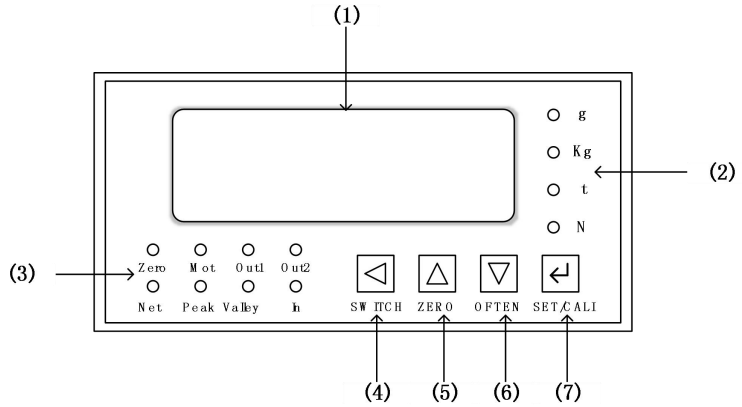
∅This instrument needs to be equipped with resistance strain bridge sensor. The wiring method is: four-wire system connection.

Note: When using a six-wire sensor, short the EX + and SN + of the sensor to the EXC + port of the transmitter; EX- and SN- to the EXC- port of the sensor.

1. Since the output signal of the sensor is an analog signal that is relatively sensitive to electronic noise, the sensor wiring should be shielded cable and should be laid separately from other cables, especially away from the AC power supply; 2. For applications with multiple sensors in parallel, ensure that the sensitivity (mV / V) of each sensor is consistent.

4. Basic Operation

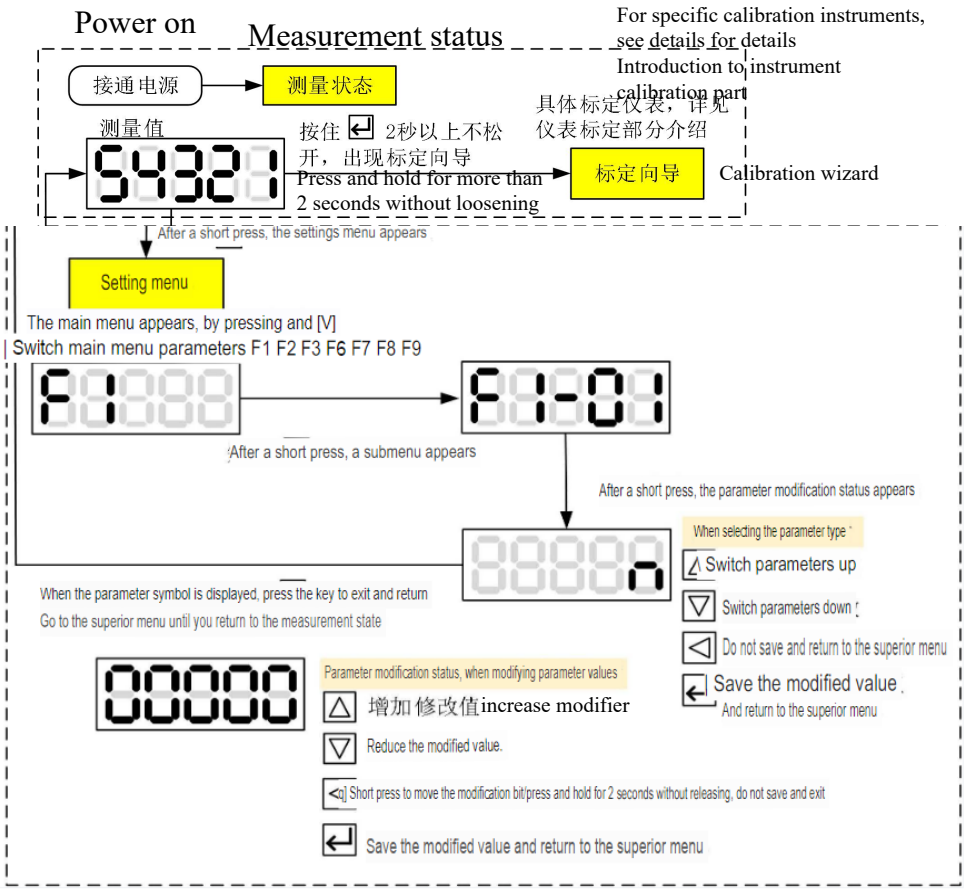
■ Panel and button description



No.	Name		Description
1	Display window		In the measurement state, it can switch to display gross weight, net weight, peak value, valley value, peak-valley value In the setting state, display the parameter symbol and value
2	Weight indicator		g, Kg, t, N are weight unit indicators, when custom weight unit is defined, all weight indicators are off
3	Status Indicator	Zero	When lit, it means zero weight
		Mot	When lit, it means the weight is changing
		Out1	Input and output port status indication
		Out2	
		In	
		Net	The current display value status indicator, in the measurement state, press the key to switch the display: Display the total value: the three lights of Net, Peak and Valley are all off Net value display: Net light on Peak display: Peak light is on Display valley value: Valley light is on Display peak-valley value: Peak and Valley lights
		Peak	
		Valley	

4		**In the measurement state: switch the measured value (gross weight, net weight, peak value, valley value, peak-valley value)** Under the menu interface: can return to the previous menu or measurement status. In the parameter editing state: shift the modification bit when modifying the value (press and hold for more than 2 seconds without releasing, you can exit without saving); you can exit to the submenu without saving when selecting parameters
5		**Under measuring state: clear** In the menu interface: the items switch up In the parameter editing state: increase the value when modifying the parameter value, and turn up the option when selecting the parameter
6		**In the measurement state: enter the common parameter menu** In the menu interface: the items switch down In the parameter editing state: decrease the value when modifying the parameter value, and turn down the option when selecting
7		**In the measurement state: short press to enter the setting menu** Press and hold for more than 2 seconds without releasing to enter the calibration wizard In the menu interface: enter the lower menu or parameter editing state In edit state: save and return to submenu

5. Parameter Setting



6. parameters

Main menu(F)（Under test status Press ↵ enter ）

No.	Name	Symbol	Content
1	F1	F1	basic parameter
2	F2	F2	Peak-valley parameter
3	F3	F3	Comparator parameters
4	F6	F6	Switching parameter
5	F7	F7	Communication parameters
6	F8	F8	Analog parameters
7	F9	F9	other parameter

basic parameter(F1)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	F1-01	F1-01	Weight Unit	none:No use g:g kg:kg t:Ton n:N
2	F1-02	F1-02	Start-up reset range	0~100；The unit is a percentage of full scale; set 0 to disable this function
3	F1-03	F1-03	Manual clear range	0~100；The unit is a percentage of full scale; set 0 to disable this function
4	F1-04	F1-04	Judgment range	0~10000；Unit: d;Set to 0 to turn off the judgment function
5	F1-05	F1-05	Judgment time	Range： 1~5.0；Unit: second
6	F1-06	F1-06	Zero range	Range： 0~99999
7	F1-07	F1-07	Automatic zero tracking range	0~10000；Unit: 0.1d;set to 0 turn off the automatic zero tracking function
8	F1-08	F1-08	Automatic zero tracking time	0~5.0；Unit: second
9	F1-09	F1-09	Creep tracking range	0~1000；Unit: 0.1d；set to 0 turn off the Creep tracking function
10	F1-10	F1-10	Creep tracking time	0~1000.0；Unit: second
11	F1-11	F1-11	AD conversion speed	10、40、640、1280;Unit: times/sec
12	F1-12	F1-12	Filter type	Choose appropriate filtering method according to different applications 0:No use 1:Average filter 2:Median filter 3:First-order filter 4:Moving average filter 5:Median average filter 6:Slide Median average filter 7:Average filter + First-order filter 8:Median filtering + First-order filter 9:Moving average filter + First-order filter 10:Median average filter + First-order

				filter
13	F1-13	F1-13	Filter strength	Range：0~50, The larger the number, the stronger the filter

PeakValley parameters (F2)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	F2-01	F2-01	Peak detection enable mode	nonE:Close Peak detection HrL: When force exceeds Peak Threshold,start Peak detection EcH:Triggered externally and meet peak Threshold, then start Peak detection
2	F2-02	F2-02	Peak Threshold	-9999~99999；When force exceeds Peak Threshold,start Peak detection
3	F2-03	F2-03	Peak return	0~99999； When force value drops exceeds Peak return, Latch current peak
4	F2-04	F2-04	Valley detection enable method	nonE:Close Valley test HrL:When force exceeds Valley Threshold, start Valley test EcH:Triggered externally and meet Valley Threshold, start Valley test
5	F2-05	F2-05	Valley Threshold	-9999~99999； When force exceeds Valley Threshold, start Valley test
6	F2-06	F2-06	Valley return	0~99999； When force value drops exceeds Valley return, Latch currentValley
7	F2-07	F2-07	Minimum interval	The Minimum interval test time of Twice peak (valley) value

Comparator parameters (F3)			
No.	**Name**	**Symbol**	**Description**
1	F3-1	F3-1	Comparator 1 parameters
2	F3-2	F3-2	Comparator 2 parameters
3	F3-3	F3-3	Comparator 3 parameters

Comparator Nparameters (N means 1、2、3)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	F3-1.1 F3-2.1 F3-3.1	F3-11 F3-21 F3-31	Comparator N enable mode	nonE:Comparator doesn't work Por:When power on, start Comparator immediately EEr:External signal start and stop Comparator

2	F3-1.2 F3-2.2 F3-3.2	F3-12 F3-22 F3-32	Comparator N judge mode	0:force value ＞Upper limit 1:Middle limit ＜force value ≤Upper limit 2:Low limit＜force value ≤Middle limit 3:force value ≤Low limit 4:force value ＞Upper limit Low limit＜force value ≤Middle limit 5:force value ＞Upper limit force value ≤Low limit 6:force value ≤Low limit Middle limit ＜force value ≤Upper limit
3	F3-1.3 F3-2.3 F3-3.3	F3-13 F3-23 F3-33	Comparator N data source	PASS:test value GroSS:gross weight nEt:Net weight PEAK :peak VALEY:Valley P-v:peak-Valley
4	F3-1.4 F3-2.4 F3-3.4	F3-14 F3-24 F3-34	Comparator N compares delay	0~25.5； Unit: second
5	F3-1.5 F3-2.5 F3-3.5	F3-15 F3-25 F3-35	Comparator N Upper limit Comparison value	-9999~99999
6	F3-1.6 F3-2.6 F3-3.6	F3-16 F3-26 F3-36	Comparator NMiddle limit Comparison value	-9999~99999
7	F3-1.7 F3-2.7 F3-3.7	F3-17 F3-27 F3-37	Comparator NLow limit Comparison value	-9999~99999

Switch parameters(F6)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	F6-00	F6-00	Output port test	△▽Change port ； ↵Switch port ； ◁Return
2	F6-01	F6-01	Output port 1 setting	0:Communication control 1:zero point 2:stable 3:overload 4:alarm 10:Comparator 1Comparing results 11:Comparator 2Comparing results 12:Comparator 3Comparing results 13:Comparator 4Comparing results
3	F6-02	F6-02	Output port 2 setting	
4	F6-03	F6-03	Output port 3	

			setting	（not support） 14:Comparator 5Comparing results（not support） 15:Comparator 6Comparing results（not support）
5	F6-50	F6-50	Enter valid time	Enter hold time, range 0.01~2.55 second
6	F6-51	F6-51	Input port 1 setting	0:No use 1:Clear 2:Peeling 3:Peeling 4:start Peak/ Valley test 5:Clear Peak/ Valley 10:start Comparator 1 11:start Comparator 2 12:start Comparator 3 13:start Comparator 4（not support） 14:start Comparator 5（not support） 15:start Comparator 6（not support）

SPAn: Calibration Gain—Sensor Range（Input range is -9999~99999, Including decimal point, decimal point is set during setting）.

8. standardize calibration

When the user uses the instrument for the first time, or when any part of the measurement system changes and the current calibration parameters of the device do not meet the user's requirements, the instrument should be calibrated. Calibration can use weight calibration and digital calibration (weight-free calibration), calibration can be modified for any one or more of the calibration parameters.

- In the measurement state, press the key for more than 2 seconds to enter, please follow the calibration wizard prompts to complete the calibration steps.
- The meter must be energized for more than 15 minutes before calibration to stabilize the sensor and meter.
- Before the new equipment is calibrated, the weighing body must be pressed with a full range of heavy objects for more than 8 hours to stabilize the mechanical structure of the equipment.
- Before and after calibration, the device must detect the angle difference.

Calibration Guide (CAL) (In measurement state, press and hold the key for 2 seconds to enter)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	CAL1	CAL 1	Weight calibration	Use Weight calibration indicator
2	CAL2	CAL2	digital calibration	No Weight calibration indicator
3	CAL3	CAL3	Multi-point correction	Segment correction indicator
4	CAL4	CAL4	Calibration password	Set the password for the calibration wizard; the default is "88888(5LED)" or "888888(6LED)"
5	CAL5	CAL5	Restore default calibration parameters	After entering, the screen displays "Contin", press 8 to initialize the calibration parameters and restore the parameters of the CAL1-CAL3 menu to the default values

Weight calibration (CAL1)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	div	dIv	Set index	0.0001、0.0002、0.0005、0.01、0.02、0.05、0.01、0.02、0.05、0.1、0.2、0.5、1、2、5、10、20、50
2	CAP	CAP	Set maximum weighing	0~99999
3	ZEro	ZEro	Calibration zero	0~99999
4	SPAn	SPAn	Calibration capacity	0~99999

Digital celibration (CAL2)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	div	dIv	Set index	0.0001、0.0002、0.0005、0.01、0.02、0.05、0.01、0.02、0.05、0.1、0.2、0.5、1、2、5、10、20、50
2	CAP	CAP	Set maximum weighing	0~99999
3	ZEro	ZEro	Calibration zero	0~99999
4	SEn	SEn	Calibration sensitivity	0.4000~6.000；Unit : mV/V
5	SPAn	SPAn	Calibration capacity	0~99999

Multi-point correction CAL3)				
No.	**Name**	**Symbol**	**Content**	**Description**
1	CLS	CLS	Multi-point correction data clear	After entering, the screen displays "Contc", press 8 to clear Multi-point correction data
2	qty	qty	Check Multi-point correction quantity	Display the number of multi-point corrections written
3	inS	inS	Insert Multi-point correction data	Follow the wizard steps to write Multi-point correction data; up to 10 points

8.1How to enter calinration menu

CAL 1: **Weight calibration** —Use the method of physical calibration. The zero-point calibration sensor is unloaded, and the gain calibration is loaded with physical objects to measure the full range.

CAL2: digital calibration (Weight-free)—The adjustment of zero point and range does not need to be loaded with real objects, but the sensor sensitivity (mV/V) and the range of the sensor are input by key to complete the calibration.

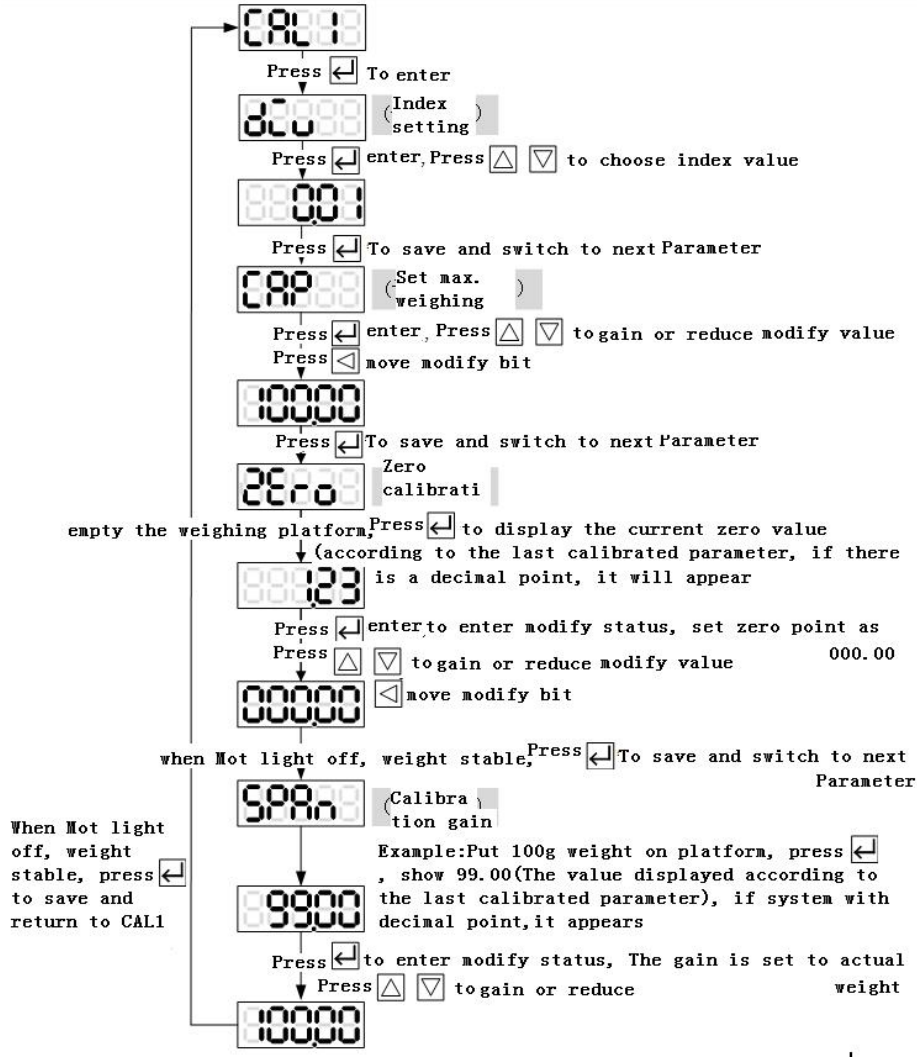
CAL3: Multi-point correction—When the input signal and the displayed number are non-linearly monotonously rising, and the data cannot be determined when ordering, it needs to be corrected at the time of calibration, and the Multi-point correction function of the instrument can be used. Monotonous rise means that the input signal increases over the entire range of the input signal, and the display data also increases. There will be no increase in the input signal, but the display data will decline instead.

CAL4: Calibration password —The user sets his own password to enter the calibration wizard.

CAL5: Restore default calibration parameters— Restore the parameters set by CAL 1 to CAL3 to the factory default values.

8.2Weight calibration

For example Description, assuming that the sensor range is 100g, it needs to be accurate to 0.01g, and the division is set to 0.01.



dCU: Set index—The difference between two adjacent readings of the indicator.

CAP: Set maximum weighing —The maximum range of the sensor (input range is 0~9999, including decimal point, the decimal point is set at Set index).

Calibration zero—The weight display value set at the time of zero calibration (input range -9999~99999, including decimal point, which is set at Set index).

Calibration gain—The weight display value set during gain calibration (input range -9999~99999, including decimal point, the decimal point is set at Set index).

Matters needing attention during weight calibration

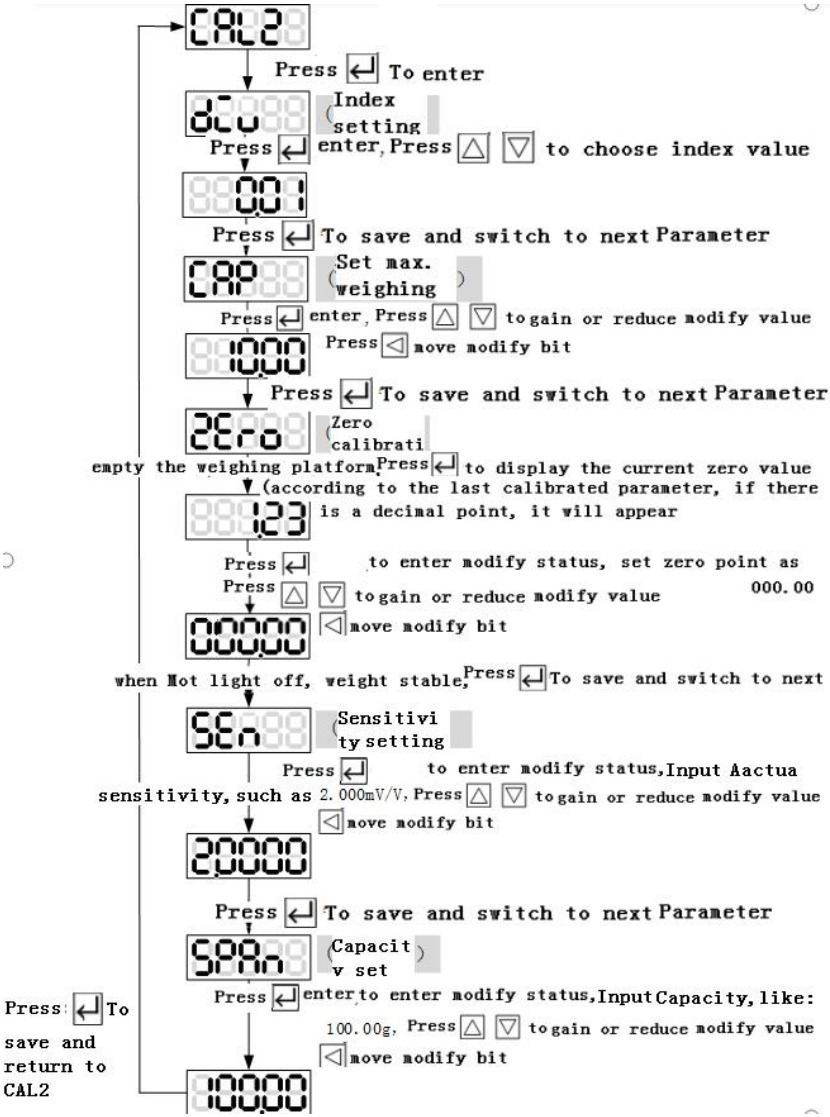
π When entering the weight value, if there is a decimal point, the decimal point will appear together. For example, if the weight value of the standard weight is 500kg and there are 1 decimal places, enter 500.0

π After the Mot indicator is off (it is stable after the weight is added to the sensor), pressing the ↲ key is effective.

π When the calibration fails, the calibration data can be cleared by (CAL5).

8.3Digital / No Weight calibration

Example: Assuming that the sensor range is 100g, the sensitivity is 2.000mv/V, and the division is set to 0.01。



dCU: Set index—The difference between two adjacent readings of the indicator.

CAP: Set maximum weighing —The maximum range of the sensor (input range is 0~9999, including decimal point, the decimal point is set at Set index).

zero: Calibration zero—The weight display value set at the time of zero calibration (input range -9999~99999, including decimal point, which is set at Set index).

SEn: Calibration sensitivity —inherent sensitivity value of the sensor.

SPAn: Calibration gain—sensor range (input range is -9999~99999, including decimal point, the decimal point is set at Set index).

Matters needing attention in digital calibration

- If only one sensor is connected to the meter, input the sensitivity of the sensor directly.
- If the meter is connected with more than two sensors, input according to the average sensitivity of the sensors.
- The position of the decimal point is fixed when the sensitivity is input.
- The range entered here is the total range of the sensor. For example: the instrument is connected with 3 sensors, and the range of each sensor is 500kg. The total range of the three sensors is 500×3=1500kg.

When the calibration fails, the calibration data can be cleared by (CAL5)

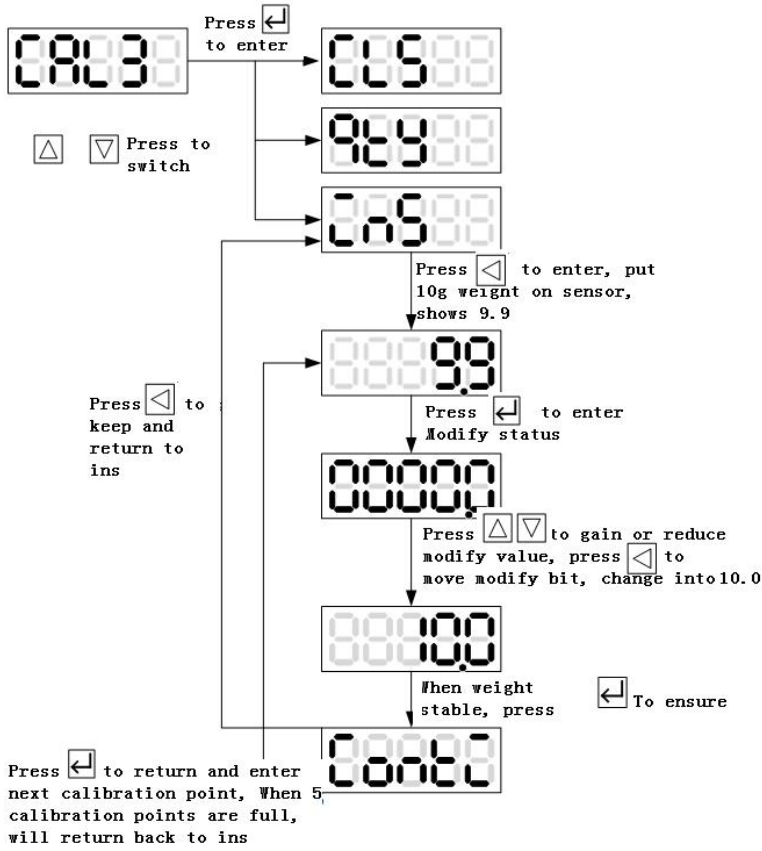
7.3Multi-point correction

CLS: Multi-point correction data Clear—Clear the previously corrected data.

qty: : View the number of multi-point corrections-display the number of multi-point corrections written

InS: Insert multi-point correction data-when there is a non-linear relationship between the displayed value and the actual weight of the object on the table, the data needs to be corrected, up to 5 points can be corrected.

For example: the meter has been calibrated, the division is 0.1, the Sensor Range is 100g, and there are weights 10g, 20g, 40g, 60, 70g. Separately placed on the weighing platform, no need to be placed according to weight. For example, 10g weight correction, other weights can be deduced by analogy.



7.4Calibration password

The password can be set for the calibration wizard. Press and hold the key ↵for more than 2 second to enter the calibration wizard. If the Input password window pops up, the input password is required to enter the calibration wizard. The input password can be set by CAL4. The length of the password is the length of a single display window (5 or 6 digits), which is composed of 10 digits from 0-9.

7.5Restore the default calibration parameters

Press ↵key enter, shows CONTC, then Press ↵ Can be initialized CAL 1-CAL4 Calibrated parameters. Press ◁ Return.

8.Fnction and corresponding parameters Description

8.1basic parameter parameters Description in F1

F1-01：Weight Unit

πPress △and ▽to select the unit. The available units are g, Kg, t, and n. When it is selected NONE, the user can customize the unit. At this time, the unit indicators on the display panel are off.

F1-02：Zero reset range

π setting range 0~100 (The unit is the percentage of full scale)

π When the display is powered on, the Clear range is automatically set.

π Take the zero point calibration point as the center during calibration, and display it according to the percentage (%) of the measuring range. (For example, the weight of the full scale is 100g, and the setting Zero reset range is 10. According to the zero point, the calibration center can be automatically cleared within ±10% range, that is, the weight of the object is between -10g and 10g of the zero point Turn on Clear when weighing.)

F1-03：Manual clear range

π setting range 1~100 (The unit is the percentage of full scale)

π In the state of displaying gross weight and Net weight, press the key △to display the weight as zero.

πTake the zero point calibration point as the center during calibration, and display it according to the percentage (%) of the measuring range. (For example, the weight of full scale is 100g, setting Manual clear range is 10, then according to the zero point calibration center within ±10% range, it can be automatically cleared, that is, the weight of the object is between -10g and 10g of the zero point weight. You can manually clear when weighing.)

Note: During use, for various reasons, the customer may repeatedly press the Clear key, so that it may appear that the value on the display does not exceed the Clear range, but it is impossible to press the Clear key. The phenomenon. At this time, the actual Clear value accumulated in the display has exceeded the allowable Clear range, so Clear cannot be used. At this time, the Clear range setting can be set to zero, the meter will clear the manual Clear value stored internally, and the user can set the Clear range again.

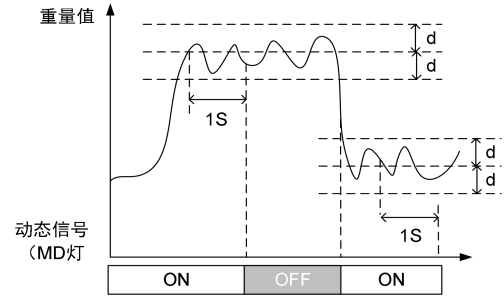
F1-04：Judgment range and F1-05：Judgment time

π Judgment range（F1-04）and Judgment time（F1-03） Cooperate with each other to conduct a stable test.

π When the system is in a non-stable state, the dynamic indicator Mot on the front panel lights.

π During calibration, when the Mot light is on, the system is in a non-stable state. At this time, even if the confirmation key is pressed, the display will not accept the weight value at this time.

example：F1-04=1d, F1-05=1 second

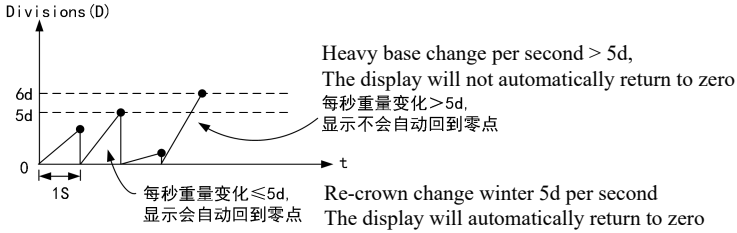


F1-06：Zero range-Calibrate zero point range.

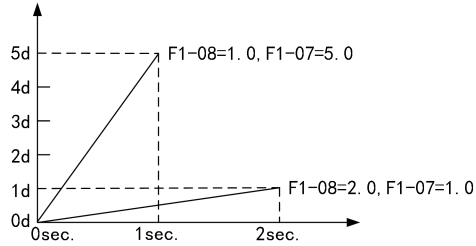
F1-07：Automatic zero tracking range and F1-08：Automatic zero tracking time

πAutomatic zero tracking range（F1-07）and Automatic zero tracking time（F1-08 Coordinate with each other for zero point tracking.

example：F1-07=5.0(5d)，F1-08=1.0（1 second ）



πzero point tracking range （F1-07）and zero point tracking time （F1-08）：



π If the zero tracking function is turned on, the zero tracking function will be automatically turned off during calibration. After the calibration is completed, the zero tracking function will be automatically turned on again.

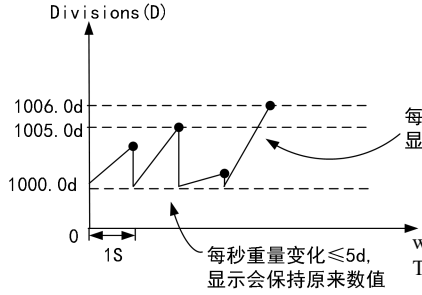
The maximum accumulated value of zero tracking is less than the setting value of Manual clear range.

π The maximum accumulated value of zero tracking is less than the setting value of Manual clear range.

F1-09：Creep tracking range and F1-10：Creep tracking time

π Creep tracking range（F1-09）and Creep tracking time（F1-10）Cooperate with each other to track measured values.

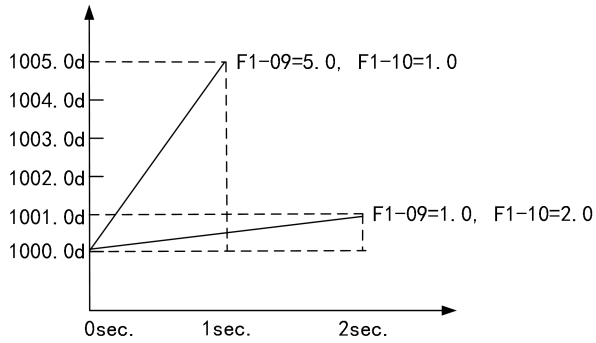
Example ： F1-09=5.0(5d)， F1-10=1.0（1 second ）



Weight change per second > 5d, \display will not keep the original value

weight change ~5d per second, The display will keep the original value

πCreep tracking range（F1-09）and Creep tracking time（F1-10）shows ：



π Creep tracking is only turned on when the measurement status is stable.

F1-11：AD conversion speed

πConversion of analog signals to digital signals, Abbreviated as AD Convert, AD conversion speed faster, The lower the sampling accuracy. The selectable speed is 10, 40, 640, 1280 times/second

F1-12：Filter type and F1-13：Filter strength

π AD sampling data, Due to various reasons, various noises from different reasons are often mixed in. In order to obtain a weighing data that is as close as possible to the true weight, the weighing equipment will use digital filtering to process the data signal. Choose according to different applications Different Filter type.

The smaller the Filter strength, the faster the signal response speed of the data output, but the worse the effect of noise filtering; and the Filter strengthis higher, the slower the response speed of the output signal, but the better the effect of noise filtering, in There is a reasonable choice between response speed and filtering effect.

8.2basic parameterF2 中 parameters Description

F2-01：Peak detection enable mode

nonE: Close Peak detection；HrL:When force exceedsPeak Threshold, start Peak detection；EtH:Triggered externally and meet Peak Threshold, start Peak detection

F2-02: Peak Threshold---After display value exceeds Peak Threshold, start Peak detection

F2-03: Peak return--After display value returns to Peak return setting, Latch current peak value

F2-04：Valley detection enable method---"Peak detection enable mode"

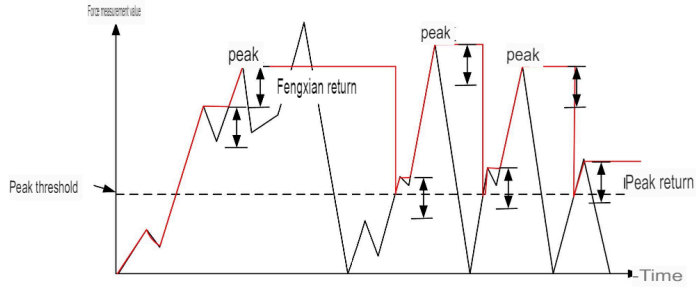
F2-05: ValleyThreshold--After display value lower than ValleyThreshold, start Valley test

F2-06: Valleyreturn--After display value return to Valleyreturn setting, Latch current peak value

F2-07：Minimum intervaltime —Minimum intervaltime of Peak (valley) value test twice, the first Peak

After the (valley) value test ends, the second test will only start if it is greater than this.

Example: For Peak detection



As shown in the figure above, when the test value exceeds the Peak Threshold setting value, the meter starts to testpeak; when the test value drop range exceeds the Peak return setting value, the peak value of the current test is latched, and the test is stopped after the test value is lower than the Threshold, Get peak.

The test value does not exceed the Peak Threshold setting value, and Peak detection is not triggered.

After the test reaches peak, only when the test value falls back less than the Peak Threshold setting value, and then exceeds the Peak Threshold setting value again, restart Peak detection, and overwrite the previous peak.

The meter always refreshes the latest acquired Peak/ Valley, please note. (If you need to keep the maximum/minimum value, please set peak/Valley return parameters to 0).

∅ Valley test and Peak detection is similar and will not be described separately..

.

π How to Clear Peak/ Valley：For single-row digital tube display instruments, under Peak/ Valley test status, short Press △key, to Clear Peak/ Valley；For the double-row digital tube display instrument, long

Press △ Press key more than 2 second, to clear Peak/ Valley.

8.3basic parameterF3 中 parameters Description

F3-1、F3-2 and F3-3 are 3 Independent groups of Comparator, called Comparator 1、2、3

π Comparator refers to the comparison of the test value and the set range, storing the Comparing results in an internal register, and the data in the register can indicate the result through communication or Output port;

F3-1.1：Comparator 1enable method

πComparator start Conditions for comparison

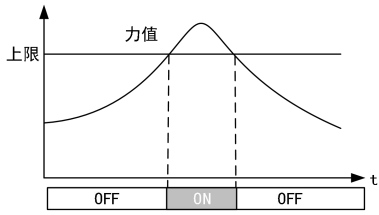
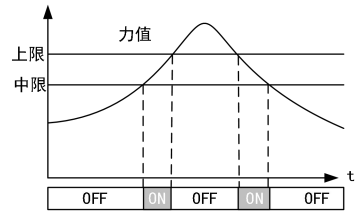
nonE:Comparator doesn't work

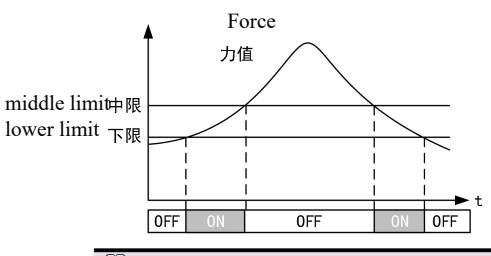
Por:Once powe on start Comparator

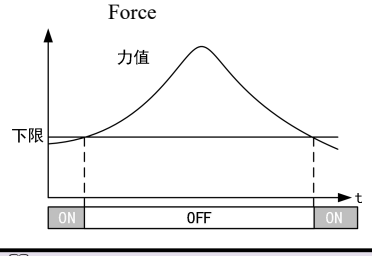
EEr:External signal start and stop Comparator —Work when receiving external signal, when external stop signal, Comparator stop working .

F3-1.2：Comparator 1judge method

π When the force value is in different comparison modes, the comparator works

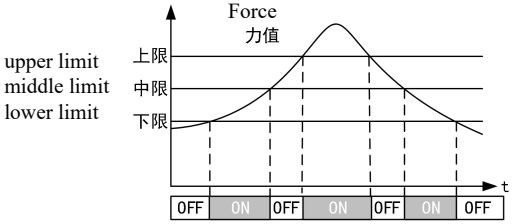
🕮 Comparison method ： 0-force value ＞Upper limit	🕮 Comparison method ： 1-Middle limit ＜force value ≤Upper limit
	
🕮 Comparison method ： 2-Low limit＜ force value ≤Middle limit	🕮 Comparison method ： 3-force value ≤Low limit

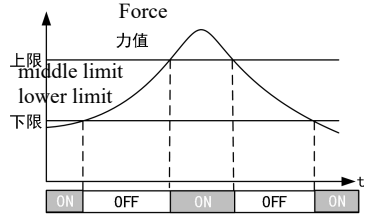




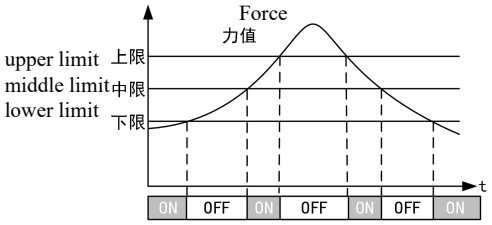
📖 Comparison method ： 4-force value ＞Upper limit
Low limit＜force value ≤Middle limit

📖 Comparison method ： 5-force value ＞Upper limit
force value ≤Low limit





📖 Comparison method ： 6-force value ≤Low limit
Middle limit ＜force value ≤Upper limit

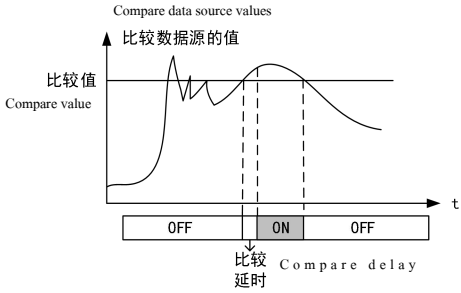


F3-1.3：Compare data sources

πThe data source for comparison can be **EAS**：test value 、**GroSS**：gross weight 、**nEt**：Net weight 、**PEAH**：peak、**uALLE**：Valley and **P-u**：peak-Valley

F3-1.4Comparator 1Compare delay

π In order to prevent misjudgment caused by short-term signal fluctuations, set Compare delaytime. In Compare delaytime, Comparison value meets the set comparison range, then Comparing results after Compare delay are established (take Upper limit output as an example).



∅ F3-1Comparator 1、 F3-2Comparator 2and F3-1Comparator 1is the same, no longer described separately.

8.4basic parameterF6 中 parameters Description

F6-00：Output port test

π Test Output port normal or not, Press △ and ▽Change port , Press ↵ Switch port, Press ◁Return.

F6-01：Output port 1 setting（OUT1）、F6-02：Output port 2 setting (out2) and F6-03：Output port 3 setting (out3)

π Press △ and ▽ choose Output port function
0:Communication control 1:zero point
2:stable 3:overload 4:alarm
10:Comparator 1Comparing results
11:Comparator 2Comparing results
12:Comparator 3Comparing results
13:Comparator 4Comparing results （not support）
14:Comparator 5Comparing results （not support）
15:Comparator 6Comparing results （not support）

F6-50：Input signal keep time

π setting Input keep time of signal, setting is higher, Input signal timeneed to be kept is longer, the anti-interference performance is better, setting smaller, the react speed is faster.

F6-51：Input port 1 setting

π Press △ and ▽ choose Output port function

SPAn: Calibration Gain—Sensor Range（Input range 为-9999~99999, Including decimal point, decimal point is set during setting）.

Matters needing attention in digital calibration

π If only one sensor is connected to the meter, input the sensitivity of the sensor directly.

π If the meter is connected with more than two sensors, the average sensitivity of the Press sensor is Input.

π If you use a junction box, use digital calibration, you can not adjust the junction box to make the angle difference the same, you can only adjust the mechanical part to make the angle difference the same.

π When the sensitivity is Input, the position of the decimal point is fixed.

π The input range here is the total range of the sensor. For example: the instrument is connected to 3 sensors, and the range of each sensor is 500kg. Then the total range of the 3 sensors is 500×3=1500kg.

π **When the calibration fails, data can be calibrated by CALS(CAL5) Clear.**

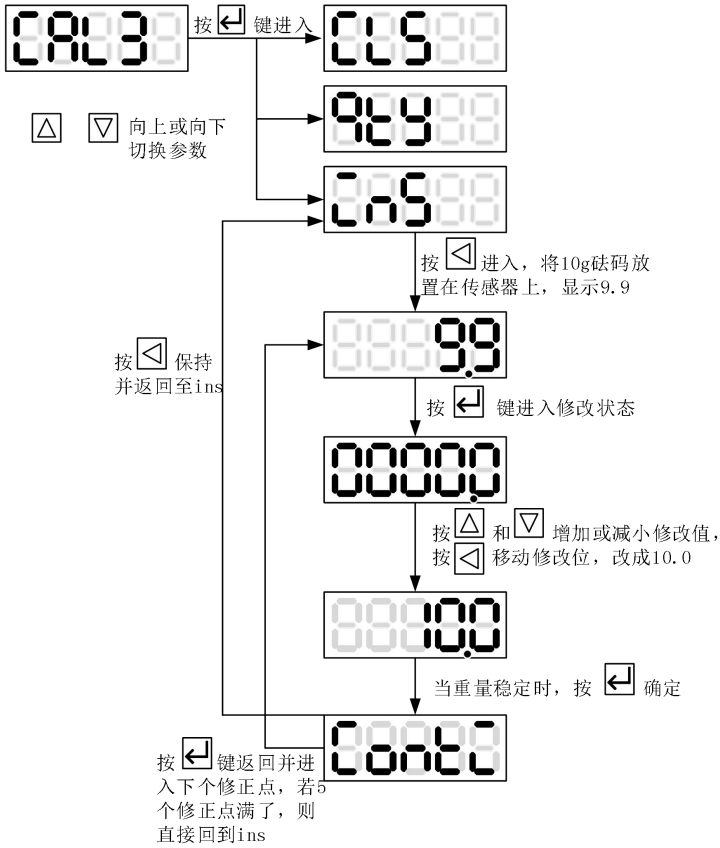
7.3Multi-point correction

CLS: Multi-point correction data Clear —Clear the previously corrected data

QTY: check Multi-point correction quantity —display written Multi-point correction quantity

InS: Insert Multi-point correction data —When there is a non-linear relationship between the displayed value and the actual weight of the object on the stage, the data needs to be corrected, and a maximum of 5 points can be corrected.

For example: the instrument has been calibrated, the division is 0.1, the Sensor Range is 100g, there are weights 10g, 20g, 40g, 60, 70g. Place them on the weighing platform, no need to press the weight size. For example, 10g weight correction, other Weight and so on.



7.4Calibration password

The calibration wizard can set the password. Press ↵key for more than 2 second, enter If the input password window pops out during the calibration wizard, need Input password then enter the calibration wizard, the input password can be set by CAL4. The password length is a single display window (5 digits) Or 6 digits), consisting of 0-9 ten digits.

7.5 Restore the default calibration parameters

Press ↵key enter , shows CONTC, then Press ↵ Can be initialized CAL 1-CAL4 to claibrate the parameters. Press ◁Return.

8. Function and corresponding parameters Description

8.1basic parameter F1 in parameters Description

F1-01：Weight Unit

π Press △ and ▽ choose unit, The selectable units are g, Kg, t, and n. When choose is the NONE user can customize the unit, and the unit indicators on the display panel are all off.

F1-02：Zero reset range

π setting range 0~100（The unit is a percentage of full scale）

π When the monitor is powered on, the Clear range is automatically set.

Take the zero point calibration point as the center of the calibration time and display it according to the percentage (%) of the range. (For example, the weight of the full range is 100g, and the setting Zero reset range is 10, then the calibration point can be automatically cleared within ±10% range according to the zero point. That is, the weight of the object is between -10g and 10g of the zero point weight, and the Clear is turned on when placed on the weighing platform.)

F1-03：Manual clear range

π setting range 1~100（The unit is a percentage of full scale）

π Under the display state of gross weight and Net weight, Press △key to make the display shows zero.

π Take the zero point calibration point as the center of the calibration time, and display it according to the percentage (%) of the range. (For example, the weight of the full range is 100g, the setting Manual clear range is 10, then the calibration point can be automatically cleared within ±10% range according to the zero point. That is, the weight of the object is between -10g and 10g of the zero point weight, and it can be manually cleared when placed on the weighing platform.) Note: During the use process, for various reasons, the customer

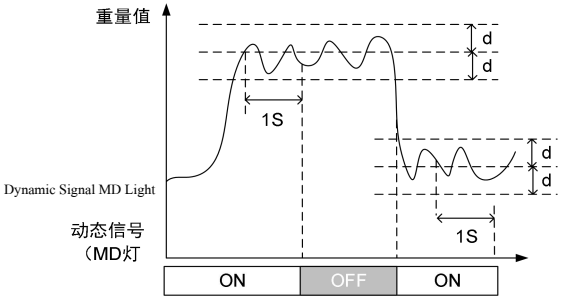
may repeatedly press Clear Key Clear, so there is It may appear that the value on the display does not exceed the Clear range, but it is impossible to press Clear Key Clear. At this time, the actual Clear value accumulated in the display has exceeded the allowable Clear range, so Clear cannot be set. At this time, you can set the Clear range setting If it is zero, the meter will clear the internally stored manual Clear value, and the user can set the Clear range.

F1-04：Judgment range and F1-05：Judgment time

πJudgment range（F1-04） and Judgment time（F1-03）Cooperate with each other and conduct a stable test.

When the system is in a non-stable state, the front panel dynamic indicator Mot light is on. During calibration, when the Mot light is on, the system is in a stable state. At this time, even if the key is confirmed under Press, the display will not accept the weight value at this time.

example: F1-04=1d, F1-05=1 second

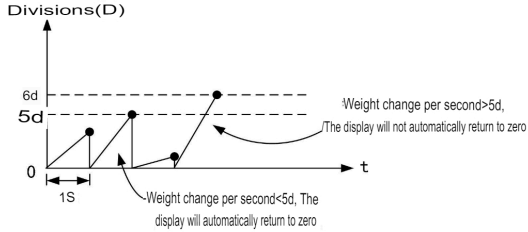


F1-06：Zero range-Range when zero point is calibrated.

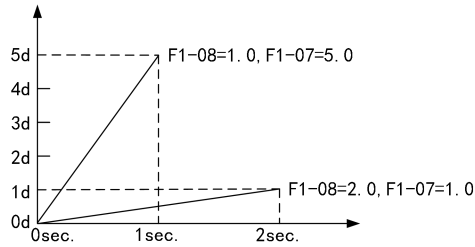
F1-07：Automatic zero tracking range and F1-08：Automatic zero tracking time

πAutomatic zero tracking range（F1-07）and Automatic zero tracking time（F1-08）Coordinate with each other for zero point tracking.

example: F1-07=5.0(5d), F1-08=1.0（1 second ）



πzero point track range （F1-07）and zero point track time （F1-08）shows：



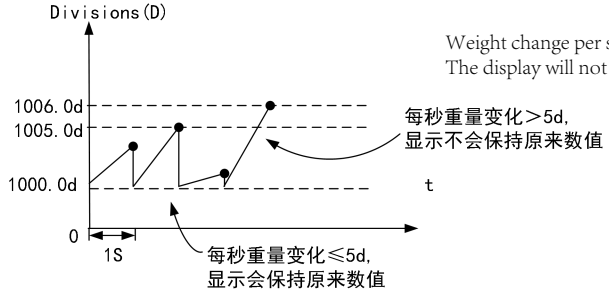
πIf the zero tracking function is turned on, the calibration will automatically close the zero tracking function.After the calibration is completed, the zero tracking function will be automatically turned on again.

π The maximum accumulated value of zero tracking is less than the setting value of Manual clear range.

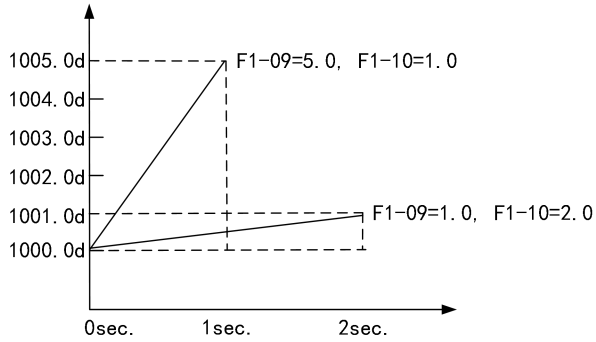
F1-09：Creep tracking range and F1-10：Creep tracking time

πCreep tracking range（F1-09）and Creep tracking time（F1-10）work cooperatively, Perform test value tracking.

example:F1-09=5.0(5d), F1-10=1.0（1 second ）



πCreep tracking range（F1-09）and Creep tracking time（F1-10）shows ：



π Creep tracking is only turned on when the measurement status is stable.

F1-11：AD conversion speed

πConversion of analog signals to digital signals, Abbreviated as AD Convert, AD conversion speed faster, The lower the sampling accuracy. The selectable speed is 10, 40, 640, 1280 times/second

F1-12：Filter type and F1-13：Filter strength

π The data after AD sampling , Due to various reasons, various noises from different reasons are often mixed in. In order to obtain a weighing data as close to the real as possible, the weighing equipment will use digital filtering to process the data signal. Choose according to different applications Different Filter type.

Filter strengthsmaller, the signal response speed of data output is faster, but the effect of noise filtering is also worse; and Filter strengthis higher, the output signal response speed is slower, but the effect of noise filtering will be better, the response speed and filtering effect, reasonable choice.

8.2basic parameterF2in parameters Description

F2-01：Peak detection enable mode

nonE: Close Peak detection；HrL:When force exceedsPeak Threshold, start Peak detection；ExH:Triggered externally and meet Peak Threshold, start Peak detection

F2-02: Peak Threshold---After display value exceeds Peak Threshold, start Peak detection

F2-03: Peak return--After display value returns to Peak return setting , Latch current peak test

F2-04：Valley detection enable method---"Peak detection enable mode"

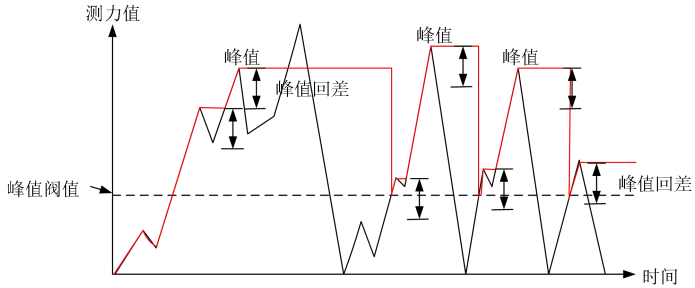
F2-05: ValleyThreshold--After display value lower than ValleyThreshold, start Valley test

F2-06: Valleyreturn--After display value return to Valleyreturn settingLatch current test to peak

F2-07：Minimum intervaltime —Minimum interval time of Peak (valley) value test twice, the first Peak

After the (valley) value test ends, only the time greater than this will start the second test

Example：For Peak detection



As shown in the figure above, when the test value exceeds the Peak Threshold setting value, the meter starts to testpeak; when the test value drop range exceeds the Peak return setting value, the peak value of the current test is latched, and the test is stopped after the test value is lower than the Threshold, Get peak.

The test value does not exceed the Peak Threshold setting value, and Peak detection is not triggered.

After the test reaches peak, only when the test value falls back less than the Peak Threshold setting value, and then exceeds the Peak Threshold setting value again, restart Peak detection, and overwrite the previous peak.

The meter always refreshes the latest acquired Peak/ Valley, please note. (If you need to keep the maximum/minimum value, please set peak/Valley return parameters to 0).

∅ Valley test and Peak detection is similar and will not be described separately.

π How to Clear Peak/ Valley: For the single-row digital tube display instrument, under the Peak/ Valley test state, short Press key △ to achieve Peak/ Valley Clear; For the double-row digital tube display instrument, Press and hold the Press key △ 2 second or more , Implement Peak/ Valley Clear.

8.3basic parameterF3 in parameters Description

F3-1、F3-2 and F3-3 are three independent Comparator, named Comparator 1, 2, 3

Comparator refers to comparing test value and set range, storing Comparing results in internal register, the data in the register can indicate the result through communication or Output port;

F3-1.1：Comparator 1 enable method

π Comparator start Conditions for comparison

nonE:Comparator doesn't work

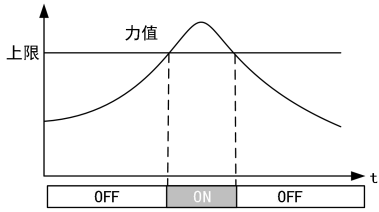
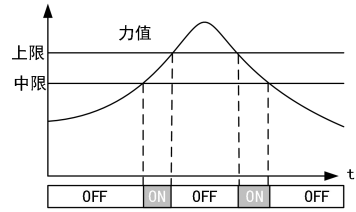
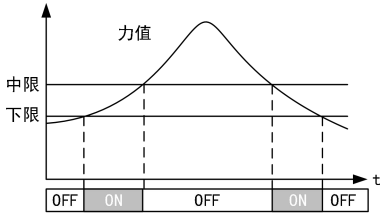
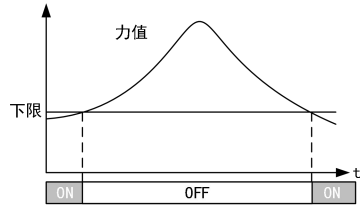
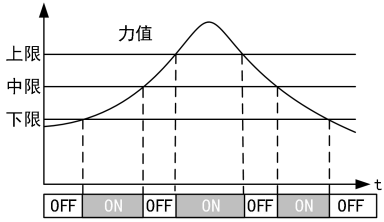
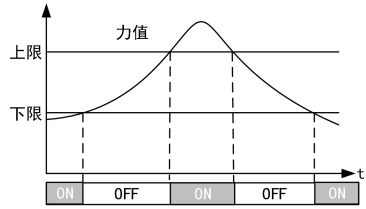
Por:Start Comparator immediately after Powe on

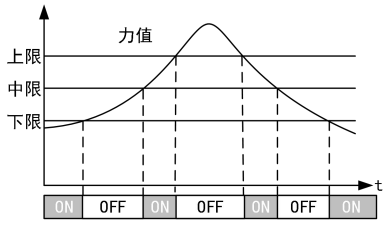
EEr: External signal start and stop Comparator — works when an external signal is received, and when an external stop signal works, the Comparator stops working.

F3-1.2：Comparator 1 Judge Mode

πforce value Under different Comparison method, Comparator work status

🕮 Comparison method ： 0-force value	🕮 Comparison method ： 1-Middle

＞Upper limit	limit ＜force value ≤Upper limit
	
🕮 Comparison method ： 2-Low limit＜force value ≤Middle limit	🕮 Comparison method ： 3-force value ≤Low limit
	
🕮 Comparison method ： 4-force value ＞Upper limit Low limit＜force value ≤Middle limit	🕮 Comparison method ： 5-force value ＞Upper limit force value ≤Low limit
	
🕮 Comparison method ： 6-force value ≤Low limit Middle limit ＜force value ≤Upper limit	

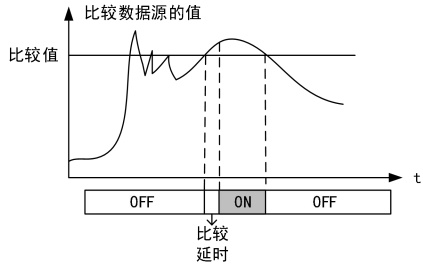


F3-1.3：Compare data sources

π The data source for comparison can be EAS: test value 、GroSS: gross weight 、nEt: Net weight 、PEAH: peak、vALLE: Valley and P-v: peak-Valley

F3-1.4Comparator 1 comparison delay time

π To prevent misjudgment caused by short-term signal fluctuations, set a comparative delay time. Within the comparison delay time, the Comparison value meets the set comparison range, and the Comparison results after the comparison delay are established (take the Upper limit output as an example).



∅ F3-1Comparator 1、F3-2Comparator 2 and F3-1Comparator 1are the same, So it will not be described separately.

8.4basic parameterF6 中 parameters Description

F6-00：Output port test

π Test Output port is normal or not, Press △ and ▽Change port, Press ↵ Switch port, Press ◁ Return.

F6-01：Output port 1 setting（OUT1）、F6-02：Output port 2 setting (out2) and F6-03：Output port 3 setting (out3)

π Press △ and ▽ choose Output port function

0:Communication control 1:zero point

2:stable 3:overload 4:alarm

10:Comparator 1Comparing results

11:Comparator 2Comparing results

12:Comparator 3Comparing results
13:Comparator 4Comparing results （not support）
14:Comparator 5Comparing results （not support）
15:Comparator 6Comparing results （not support）

F6-50：Input Signal hold time

π setting Input Signal hold time, setting is higher, The longer the Input signal needs to be maintained, the better the anti-interference effect; setting is lower, the faster the response speed.

F6-51：Input port 1 setting

π Press △ and ▽ choose Output port function

0:No use 1:Clear 2:Peeling
3:Peeling 4:start Peak/ Valley test
5:Clear Peak/ Valley
10:start Comparator 1
11:start Comparator 2
12:start Comparator 3
13:start Comparator 4（not support）
14:start Comparator 5（not support）
15:start Comparator 6（not support）

8.5basic parameter F9 Part parameters Description

F9-01：Display refresh rate

π The number of times the displayed value is refreshed within 1 second. If the displayed value is not stable, the value of this parameter can be lowered to obtain the stable state.

F9-02： TEDS scanning (only supported by instruments with TEDS function)

π Press △ and ▽ Change, choose oFF：only when powered on, testTEDS sensor ；

on：Each 1 second test TEDS sensor oncer.

F9-03：Display sensor millivolt signal

π This parameter can directly display the current sensor's millivolt signal size. You can judge whether the sensor is working normally by displaying the value of the millivolt signal when the sensor is working.

F9-04： setting parameters password

π可对 basic parameter menu setting password. When short Press ↵ enter menu, If the Input password window pops out, the Input password is required to enter at this time, and the password of enter can be set through F9-04. The password length is the length of a single display window (5 digits or 6 digits), and consists of 0-9 ten digits.

F9-05：Restore default parameters

π Restore the parameters from F1 to F9 setting to the factory default parameters (calibrated parameters are not affected).

F9-06：About the product-you can view the firmware version of the instrument.

F9-07：Status (only supported by instruments with TEDS function)

π Check whether the currently connected sensor is a TEDS sensor, displayed as a TEDS sensor, and displayed as a normal sensor

8.6basic parameteroft part parameters Description

Under test status, Press ▽ enter Common parameters menu, parameters Contentand F3-1 and F3-2 are the same, not elaborated here.

9.TEDS Function description

An instrument with TEDS function needs to be connected to a smart sensor. The smart sensor comes with a digital memory. The memory contains the sensor model, serial number, sensitivity, last calibration date and other information. The instrument reads the memory content in the sensor to make the sensor The measurement system has "plug and play" and self-calibration capabilities. Using TEDS function can save costs and install time, the application is more reliable. When users use it in the field, plug and play, no calibration is required.

10.Analog output

10.1basic parameterF8 in parameters Description

F8-01：analog output type -- Press △ and ▽Change, choose **0-20**: 0~20mA；**4-20**: 4~20mA； **-10 10**： -10v~10v.

F8-02：analogdata source type-- Press △ and ▽Change, choose **ERS**:test value 、**Gross**: gross weight 、**nEt**: Net weight 、**PEAK**: peak、**vALLE**: Valley and **P-v**: peak-Valley

F8-03：First point analog quantity, F8-04: second point analog quantity, F8-05: first point weight, F8-06 second point weight

π The corresponding relationship between Analog output value and weight value is as follows (take 4~20mA as an example):

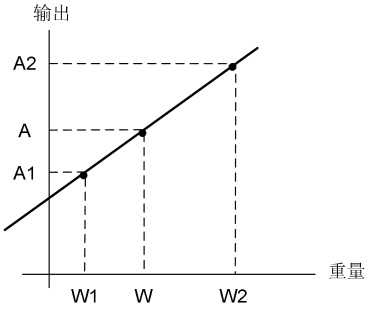
W means display weight　　A means Analog output

W1 represents the weight of the first point　　A1 represents the Analog output

corresponding to the weight of the first point
W2 represents the weight of the second point A2 represents the Analog output corresponding to the weight of the second point

则实时的模拟输出量

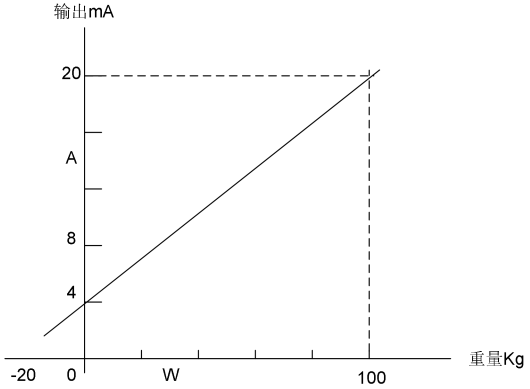
$$A=\frac{A2-A1}{W2-W1}(W-W1)+A1$$



W1=0Kg， A1=4mA，W2=100Kg，A2=20mA

$$A=\frac{20-4}{100-0}\ （W-0）+4=\frac{16}{100}\ W+4$$

When W is 50Kg, A is 12mA



F8-07：Fine-tune the first point's analog quantity and F8-08: Fine-tune the second point's analog quantity—When the analog quantity shows a deviation, fine-tuning can be performed.

The analog adjustment range is divided into 3 levels. Press ◁ to change. When choosing S, adjust 0.001mA (V) each time; when choose n, adjust 0.01mA (V) each time; when choose L, adjust 0.1mA (V) each time.

π Press △and ▽ fine-tune the output of the analog volume.

Taking 4~20mA as an example, when the display value of the first point analog value is 3.99mA, Press ◁changes the gear to the ngear, and Press △fine-tunes the analog amount to 4.00mA.

11.Serial communication

11.1basic parameterF7， part parameters Description

F7-01：basic parameters— Press △ and ▽ to choose FrEE（free protocol)） and rtu （Modbus protocol). For specific protocol content, please refer to relevant documents.

F7-02：Baud rate-- Press △ and ▽ optional baud rate 1200、2400、4800、9600、19200、38400、57600、115200.

F7-03：Communication address—optional range 1~247, the factory default is 1.

F7-04：data frame format- Press △ and ▽Change digital frame format, 7 options

7-E-1:7 data bits, even parity,1 stop bit

7-o-1:7 data bits, Odd parity,1 stop bit

7-n-2:7 data bits, No check,2 stop bit

8-E-1:8 data bits,even parity,1 stop bit

8-o-1:8 data bits,Odd parity,1 stop bit

8-n-1:8 data bits,No check,1 stop bit

8-n-2:8 data bits,No check,2 stop bit

F7-05：Response delay-Response delay is used for RS485 communication. Because RS485 is half-duplex, it can only send or receive, and cannot send and receive at the same time. Some hosts send and receive changes slowly, resulting in the loss of response commands, so the response delay time is set by a reasonable setting It can avoid the loss of instructions.

F7-06：check-check method choose, Press △and ▽up and down Change, choose**oFF**: Close CRC check；

on：Enable CRC check (this setting is invalid for Modbus protocol)

F7-07：Continuous sending settings-- Press ↵ enter Continuous sending settings menu(continuous sending function is invalid for Modbus protocol).

F7-7.1：continuous sending Switch - Press △ and ▽up and down Change, choose **oFF**: Close continuously sending ；

on：Open continuously sending .

F7-7.2：continuously sending data Type - Press △ and ▽up and down Change, Optional for: data Type —**tAS**：test value 、**GroSS**：gross weight 、**nEt**：Net weight 、**PEAK**：peak、**vALLE**：Valley and **P-v**：peak-Valley

F7-7.3：data Update Method -- Press △ and ▽up and down Change, choose **oFF**：No matter whether the data is updated or not, **on** will be sent; only sent when the data is updated.

F7-7.4：Interval time —the Interval time of continuously sending data , set range as 0~60.000 second.

F7-7.5：Send Format -- Press △ and ▽up and down Change, choose **Std**：Standard Format ； **SCP**：Simple Format .

If you want to know the content of the agreement, please refer to the details of the agreement!

12.Error code explanation

If the following error code appears on the display instrument, please determine the cause of the error based on the content displayed on the code.

No.	Name	Symbol	Content
1	Err01	Err01	Zero error at power-on
2	Err02	Err02	Manual zero error

3	Err06	Err06	Unstable weight
4	Err20	Err20	Data out of range
5	Err21	Err21	Unreasonable weight
6	Err25	Err25	Incorrect password
7	Err90	Err90	Sensor failure
8	Err91	Err91	AD chip failure