Flow Totalizer

Installation and Operation Guide

Part 1 Menu Operation

Part 1 Menu Operation

1.1 Menu instruction

1.1.1 Operation Interface

AH: Upper limit warning light AL: Lower limit warning light

TX: Indicator of data sending RX: Indicator of data receiving

SET key: Enter to next menu, enter main menu in measuring screen, and switch to next parameter in setup menu.

: Up key, move the cursor upward, and increase the value in setup menu.

: Down key, move the cursor downward, and reduce the value in setup menu.

: Left key, move the cursor leftward, and Shift the flashing digit position to left in setup menu.

Prompt line

OK	ERR	ST	SP	TP	mA	ALM1	ALM2
Working well	Abnormal working	Set the temperature compensation	Set the pressure compensation	Temperature and pressure at the same time set compensate	Current output over range	Alarm 1, up arrow for the upper limit alarm, down arrow for the lower limit alarm.	Alarm 1, up arrow for the upper limit alarm, down arrow for the lower limit alarm.
00103: Instrument communication state information display, before three are expressed mailing address, and the four said the parity bit, 0: no parity; 1: odd parity; 2: parity check; fifth, said the baud rate, the 0:1200; 1:2400; 2:4800; 3:9600.							

1.1.2 Display Screen

Flow rate	
1. Prompt information	OK ST AL1 AL2 00103
2. Flow rate	0. 000 m³/h
3. Flow totalizer	00000000. 000m³
4. Temperature and pressu	-123.8℃ 2758.5kPa
Input signal	
1. F:Frequency; I:Current	F: 0.00 I: 0.000
2. Pressure current	PI: 0.000 mA
3. Temperature current	TI: 0.000 mA
4. Clock	2018-01-01 17:21
Measuring	
1. Temperature	Tem.: 180.0℃
2. Pressure	Pre.: 800.000 kPa
3. Density	Den.:1000.0kg/m3
4. Differential pressure	D.P: 0.000 kPa

In the display interface, press the right key to view the interface on the left.

1.2 Main Menu

In display screen, press SET key to enter main menu.

1.Query and exp.
2.Com Setting
3.Input setup
4.Output setup

5.Total reset
6.Calibration
7.Display unit
8.Password

9.Date and time
10.Self-test

1.3 Query and Export

1.3.1 Query Submenu

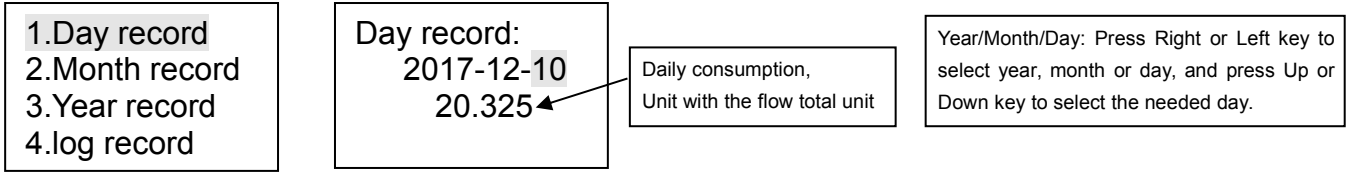
In main menu, press Up or Down key to select Query submenu, and then press SET key to enter.

In Query submenu, there are records of Daily, Monthly, year, log read：Export date and year records and log records.

Press Up or Down key to select the inquiry record and Export records, and then press SET key to Submenu

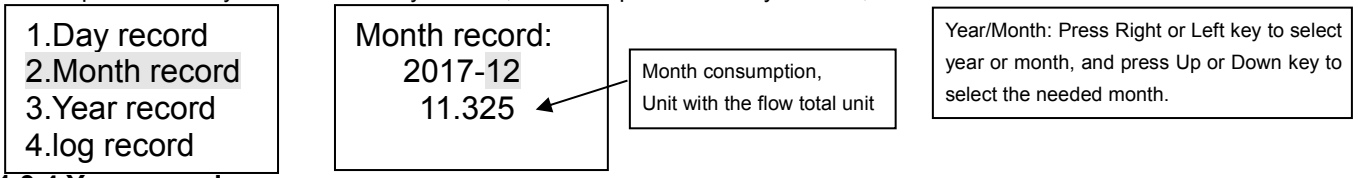
1.3.2 Day Record

Press Up or Down key to select Day Record, and then press SET key to enter, shown as below.



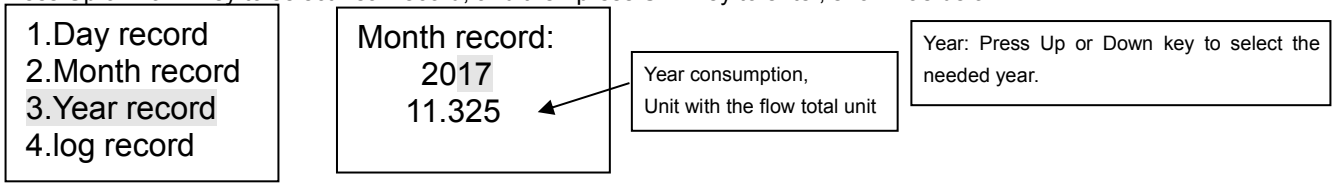
1.3.3 Monthly Record

Press Up or Down key to select Monthly Record, and then press SET key to enter, shown as below.



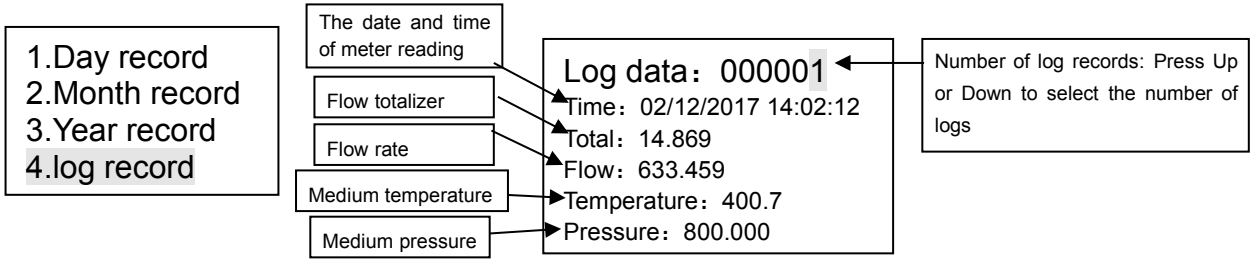
1.3.4 Year record

Press Up or Down key to select Year record, and then press SET key to enter, shown as below.



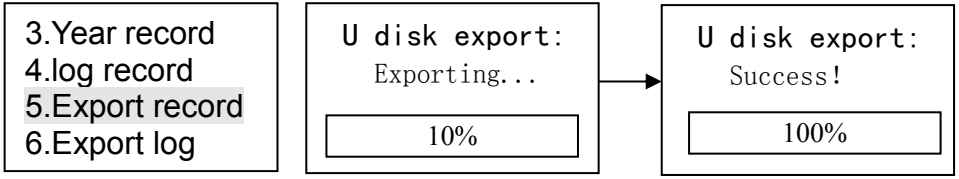
1.3.5 log record

Press Up or Down key to select log record, and then press SET key to enter, shown as below.



1.3.6 Export record

Press Up or Down key to select Export record, and then press ENTER key to enter, shown as below. No USB interface, no this option.



The export data format is ". Csv", There are three export documents, there are days, months, years. And the data can be opened in the computer EXCEL software. The data is shown in the following diagram. As shown below.

	A	B
1	08/08/201	26.63456
2	25/12/201	16.09522

Data

	A	B
1	01/2018	13.7734
2	08/2017	26.63456

Monthly record

	A	B
1	2017	2.067084
2	2018	13.7734

Year record

1.3.7 Export log

Press Up or Down key to select Export log, and then press SET key to enter, shown as below. No USB interface, no this option.

The export data format is ". Csv", And the data can be opened in the computer EXCEL software. The data is shown in the following diagram. As shown below.

	A	B	C	D	E	F
1	DATE	TIME	TOTAL	FLOW	TEMPERATURE	PRESSURE
2	08/08/201	0:00:02	13.773	0	180	800
3	08/08/201	0:00:03	13.773	0	180	800

1.4 Communication setup

In main menu, press the SET key to enter the menu interface, press Up or Down key to select Communication setup submenu, and then press SET key to enter. shown as below.

Com1 parameter
Device ID: 001
Baud rate: 9600
Parity: NONE

Com1 parameter
Modbus: RTU
Endian: 3412

RS485 communication setup: The meters address range: 0～255. Baud rate can be selected 1200, 2400, 4800 and 9600. Parity check can be selected none, odd and even. After the communication is set, press the SET key button to enter the mode selection. Communication mode selection, RTU, ASCII two modes, data arrangement Shun information selection, 3412,1234 two.

Setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.5 Input setup

This submenu affects the performance and accuracy of instrument, please be careful when operating. Set the flow signal parameters, temperature parameters, pressure parameters. In main menu, press Up or Down key to select Setup submenu, and then press SET key to enter.

1.Query and exp. 2.Com Setting 3.Input setup 4.Output setup	Setup Password **0*****	1.Flow signals 2.Tempe.signals 3.Press.signals	Note: The input setup submenu has password protection. When inputting password, press Left key to shift the cursor, and press Up or Down key to increase or decrease the number. The default password is 000000, users can modify the password according to 1.10 Password.

1.5.1 Flow signals

1.5.1 Medium

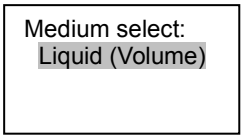
1.5.1.1 Medium Options

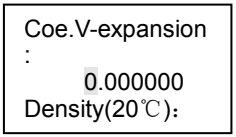
In the input setup menu select the flow signal Press the SET key to enter the subSET, press SET key to enter “Medium” select.

1.Flow signals 2.Tempe.signals 3.Press.signals	Medium Options
	1. Liquid (Volume)
	2. Liquid (Mass)
	3. Constant Density
	4. Vapor (Auto): Vapor Automatic Compensation
Medium select: Liquid(volume)	5. Saturated stm. T: Saturated vapor temperature compensation
	6. Saturated stm. P: Saturated vapor pressure compensation
	7. Superheated stm.: Superheated vapor pressure and temperature compensation
	8. Gas (Std. volume)
	9. Gas (Oper. volume)
	10. Gas (Mass)

1.5.1.2 Liquid (Volume)

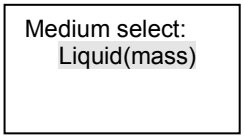
In medium menu, then press Up key to select Liquid (Volume).
Press SET key to shift cursor on density value, and then press Up/Down key to change this value.
After setting Density (20℃), press Left key to shift cursor on Density (20 ℃), press Up key to change Density (20 ℃) to Coe.V-expansion (Expansibility factor), press Right key to shift cursor on factor value, and then press Up/Down key to change this value.

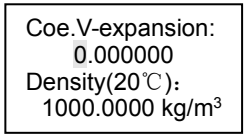




1.5.1.3 Liquid (Mass)

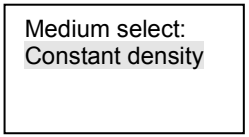
In medium menu, then press Up key to select Liquid (Mass).
Press SET key to shift cursor on density value, and then press Up/Down key to change this value.
After setting Density (20℃), press Left key to shift cursor on Density (20℃), press Up key to change20℃ density to Coe.V-expansion (Expansibility factor), press Right key to shift cursor on factor value, and then press Up/Down key to change this value.

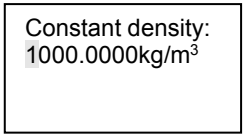




1.5.1.4 Density Compensation

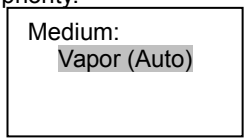
In medium menu, press Left key to shift cursor on Constant density,
Press SET key to shift cursor on density value, and then press Up/Down key to change this value.

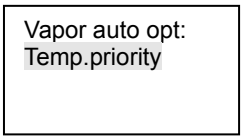




1.5.1.5 Vapor (Auto)

In medium menu, Press Up key to select Vapor (Auto), press Right key to shift cursor to option content, Press MENU to enter the temperature and pressure compensation priority selection，and then press Down key to select pressure priority or temperature priority.



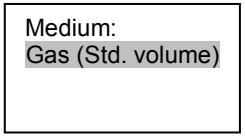


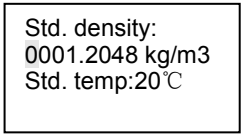
Pres. priority: Include high temperature condensate water, pressure compensation priority.
Temp. priority: Only measure dry saturated vapor, temperature compensation priority.

Medium select: Saturated stm. T	Medium select: Saturated stm. P	Medium select: Superheated stm.	When measuring vapor, there are another three selections: Saturated vapor temperature compensation, Saturated vapor pressure compensation and Superheated vapor pressure and temperature compensation.

1.5.1.6 Gas (Std. Volume)

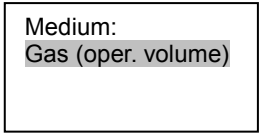
In medium menu, press Up key to select Gas (Std. volume). Compensation is the temperature and pressure compensation of common gas, and the unit of flow rate is Nm3/h.
Press SET key to density Submenu, need to set the standard density and standard temperature. Right key to move the cursor position，and then press Up/Down key to change this value.

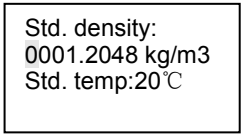




1.5.1.7 Gas (oper. Volume)

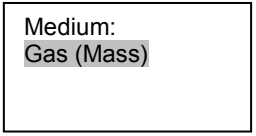
In medium menu, press Up key to select Gas (Std. volume). Compensation is the temperature and pressure compensation of common gas, and the unit of flow rate is m3/h.
Press SET key to density Submenu, need to set the standard density and standard temperature. Right key to move the cursor position，and then press Up/Down key to change this value.

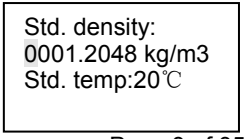




1.5.1.8 Gas (Mass)

In medium menu, press Up key to select Gas (Mass). Compensation is the temperature and pressure compensation of common gas, and the unit of flow rate is t/h.
Press SET key to density Submenu, need to set the standard density and standard temperature. Right key to move the cursor position，and then press Up/Down key to change this value.



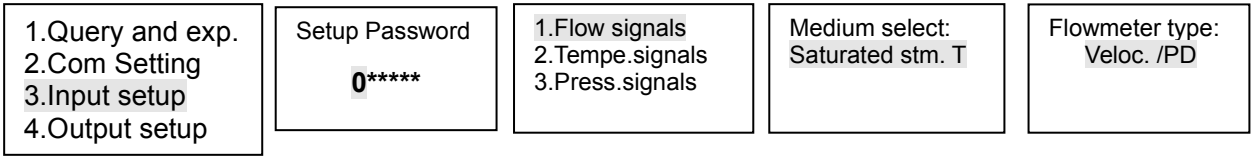


1.5.2 Flowmeter type

After setting the media, press the SET button to enter the flow sensor input type submenu. Press to up key switch the sensor type during setting.

This submenu affects the performance and accuracy of instrument, please be careful when operating.

In main menu, press Up or Down key to select Setup submenu, and then press menu key to enter.



Before setting, please confirm the meter type. The meter types are shown as below.

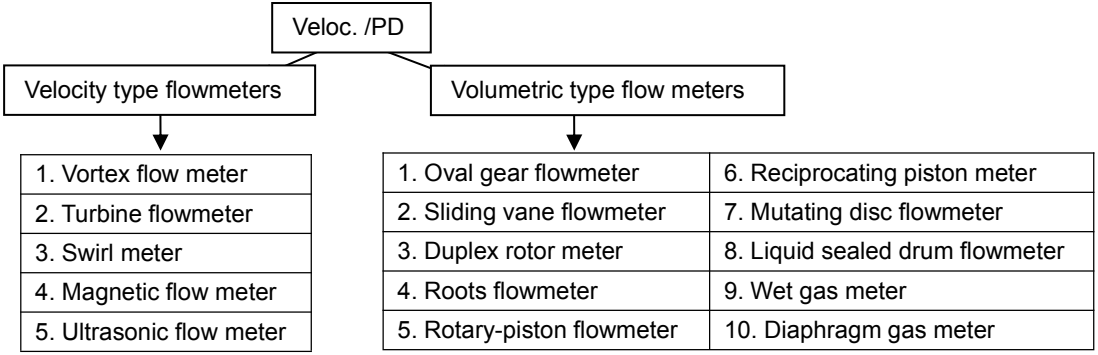
1. Veloc. /PD: Velocity/Volume	4. Orifice DP: Orifice plate DP	7. Elbow DP
2. Mass Flow	5. V cone DP	8. Linear: Linear current
3. DP scale: DP flow	6. Annubar DP	9.K Coe DP

(DP: Differential Pressure)

After setting the meter type, by pressing the MENU key button to switch the sensor type related options.

1.5.2.1 Veloc. /PD

The meter type “Veloc. /PD” includes Volumetric flowmeters and Velocity type flow meters, shown as below.



After setting meter type, Press the SET button to switch to the signal selection submenu. There are two parameters in Veloc. /PD: Pulse (Volume), 4-20mA (Volume).

When choosing different signal type, the related parameters will vary, shown as below.

Pulse		4-20mA	
1. Signal type	3. Coefficient linearity	1. Signal type	3. Flow unit
2. Cut-off frequency	4. Flow coefficient	2. Flow scale	4. Cut-off current

1.5.2.1.1 Pulse

In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu .and then press Up/Down key to select “Veloc. /PD”.

In the signal type menu, press the up key to select the signal type (Pulse), After setting the flow type, press the MENU key to switch the options once to set the flow coefficient, cut off the frequency, frequency segmentation correction.

Flowmeter type: Veloc. /PD	Sign type: Pulse	Flow K: 00200.0000 1/L	Cut-off fieq.: 0000 Hz Coef. line.: OFF

If you do not choose coefficient correction, just set FLOW K. When setting, press the right button to set the cursor position, up and down keys to change the value.

After the Flow k setting is completed, press the SET key to set the Cut-off fieq. value. (Cut-off pulse is set according to different flowmeters on site. Generally, do not need to set this parameter.).

After setting Cut-off frequency, press Left key to shift cursor on Cut-off freq., and then press Up key to change Cut-off freq. to Coefficient linearize (Coefficient linearize is used for linearity correction, default setup is “OFF”).

Cut-off fieq.: 0000 Hz Coef. line.: ON	Flow coe.: Sect 0 Freq：0000 Coe.:000000.0000	Note: Note: If coefficient linearity is set ON, Press the MENU button to enter the correction factor menu, press the right key to set the cursor position, the up and down keys to change the value。After setting, press ENTER key to enter next menu.

Flow coefficient:

When setting flow coefficient, it can set by section, the number of section is 0-9.

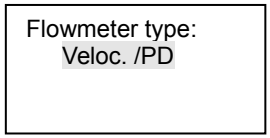
Freq: Frequency of section, the input range is 0-9999.

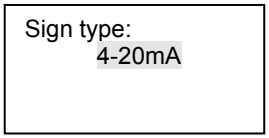
Coe: Flow coefficient corresponding to different section. After calibration, input the frequency of section and flow coefficient from section 0 to section 9. Note: If the ten sections are not all in use, for example, there are five sections in use (Section 0 to section 4), set section of frequency 5000 and flow coefficient of section 4 in section 5.

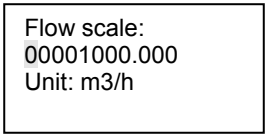
1.5.2.1.2 4-20Ma

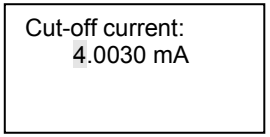
In input setup, press Up or Down key to select flow signals submenu, press menu key to Flowmeter type Submenu ,and then press Up/Down key to select “Veloc. /PD”.

In the signal type menu, press the up key to select the signal type (4-20mA), After setting the flow type, press the SET key to switch the options once, set the flow range, cut off the current.







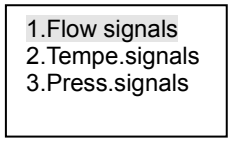


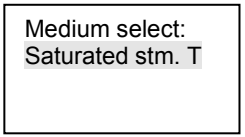
When Flow scale setting, press the right button to set the cursor position, up and down keys to change the value (The Flow full scale should be the same as that of flowmeters).

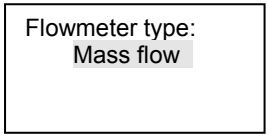
After the range setting is completed, press the SET key to set the cut-off current value. (Cut-off current is set according to different flowmeters on site. Generally, do not need to set this parameter.).

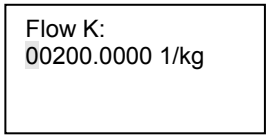
1.5.2.2 Mass Flow

In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu ， and then press Up/Down key to select “Mass flow”.





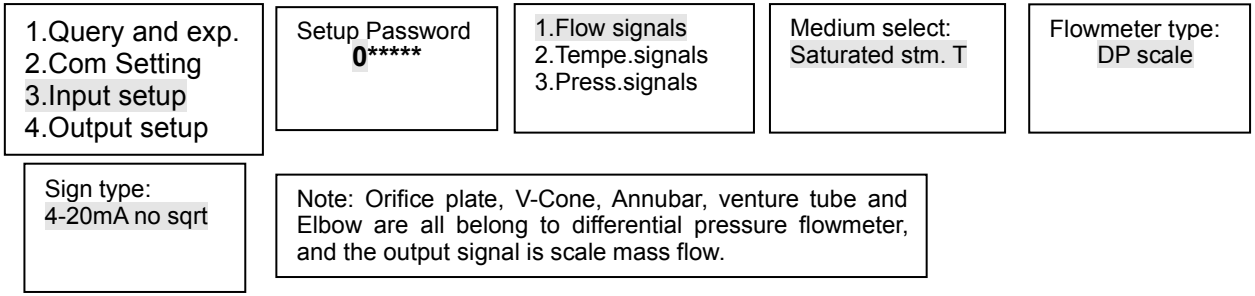




There are three parameters in Mass Flow: Pulse (Mass), 4-20mA (Mass).
The setup method of mass flow is the same as that of Veloc. /PD.

1.5.2.3 DP Flow

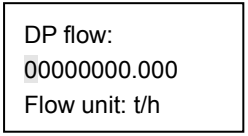
In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu ,and then press Up/Down key to select “DP Scale”.



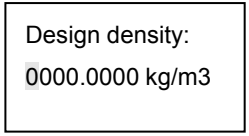
After the flowmeter type is set, press the SET key to switch to the signal type submenu. There are four signal types: 4-20mA No sqrt, 4-20mA sqrt. In this manual, it only introduces 4-20mA No sqrt, the others refer to 4-20mA No sqrt. Press Up key to select different signal types.

- 4-20mA No sqrt: means that the output signal of differential pressure transmitter is no square root signal, this kind signal should be extracted the square root and then can take part in computation.
- 4-20mA Sqrt: means that the output signal of differential pressure transmitter is linear signal, this kind signal does not need to be extracted the square root.

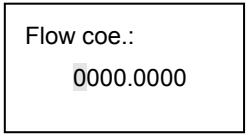
After setting signal type, Press SET to switch to the scale flow range and unit setting submenu, Press the right button to move the cursor position, the up and down keys to modify the value. (The range of DP flow is 0-9999999.999)， Press Right key to shift cursor on unit t/h, and then press Up key to select different units (t/h and Kg/h).

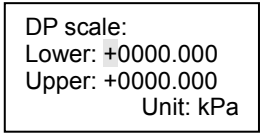


After the scale flow setting is completed, press the SET key to enter the Design density submenu. Press the right button to move the cursor position, the up and down keys to modify the value.



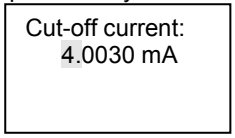
After the Design density setting is completed, press the SET key to enter the Flow Coefficient submenu. Press the right button to move the cursor position, the up and down keys to modify the value. (This parameter need not be set)





Note: When shifting the cursor on the +/- symbol, press Up key to switch positive and negative pressure.
The range of DP low limit is 0-999.999.

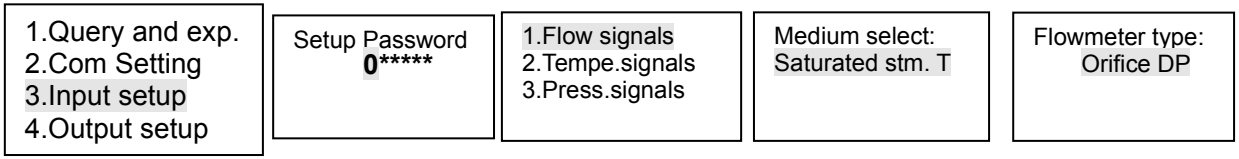
After the Flow Coefficient setting is completed, press the SET key to enter the DP scale submenu. Press the right button to move the cursor position, the up and down keys to modify the value. Press the right button to move the cursor to DP unit (Differential pressure unit), and then press Up/Down key to select different units (Pa, KPa and MPa).



After setting the differential pressure range, press the menu button to enter the Cut-off current sub-menu. Press the right button to move the cursor position, the up and down keys to modify the value. Cut-off current is set according to different flowmeters on site. Generally, do not need to set this parameter.).

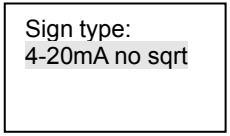
1.5.2.4 Orifice DP

In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu ,and then press Up/Down key to select “Orifice DP”.

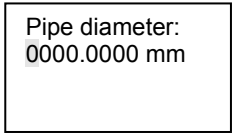


There are nine parameters in Orifice DP: Signal type, Pipe diameter, Hole diameter, Expansibility, Flow Coefficient, DP unit, DP low scale, DP high scale and Cut-off current.

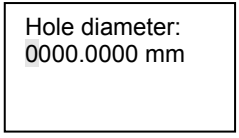
After the flowmeter type is set, press the SET key to switch to the signal type submenu. There are four signal types: 4-20mA No sqrt, 4-20mA sqrt. In this manual, it only introduces 4-20mA No sqrt, the others refer to 4-20mA No sqrt. Press Up key to select different signal types.



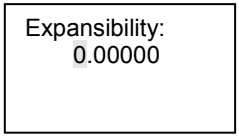
After setting Signal type, press SET key to Pipe Diameter Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



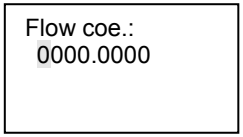
After setting Pipe Diameter, press SET key to Hole Diameter Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.

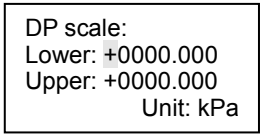


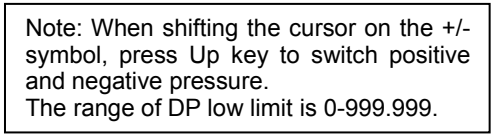
After setting Hole diameter, press SET key to Expansibility Submenu，press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



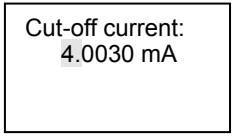
After setting Expansibility, press SET key to Flow coe. Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.







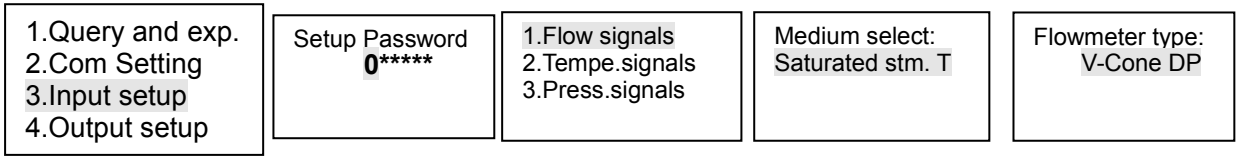
After the Flow Coefficient setting is completed, press the SET key to enter the DP scale submenu. Press the right button to move the cursor position, the up and down keys to modify the value. Press the right button to move the cursor to DP unit (Differential pressure unit), and then press Up/Down key to select different units (Pa, KPa and MPa).



After setting the differential pressure range, press the menu button to enter the Cut-off current sub-menu. Press the right button to move the cursor position, the up and down keys to modify the value. Cut-off current is set according to different flowmeters on site. Generally, do not need to set this parameter.).

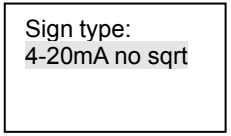
1.5.2.5 V-Cone DP

In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu ,and then press Up/Down key to select “V-Cone DP”.

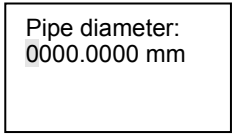


There are nine parameters in V-Cone DP: Signal type, Pipe diameter, Cone diameter, Expansibility f, Flow Coefficient, DP unit, DP low scale, DP high scale and Cut-off current.

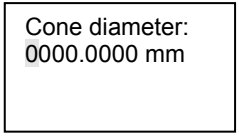
After the flowmeter type is set, press the SET key to switch to the signal type submenu. There are four signal types: 4-20mA No sqrt, 4-20mA sqrt. In this manual, it only introduces 4-20mA No sqrt, the others refer to 4-20mA No sqrt. Press Up key to select different signal types.



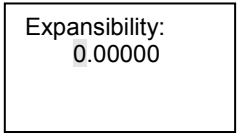
After setting Signal type, press SET key to Pipe Diameter Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



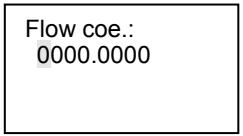
After setting Pipe Diameter, press SET key to Cone Diameter Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.

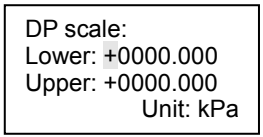


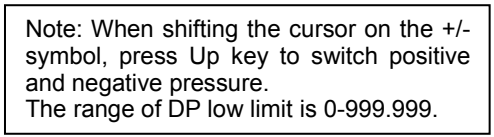
After setting Cone Diameter, press SET key to Expansibility Submenu press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



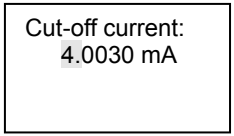
After setting Expansibility, press SET key to Flow coe. Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.







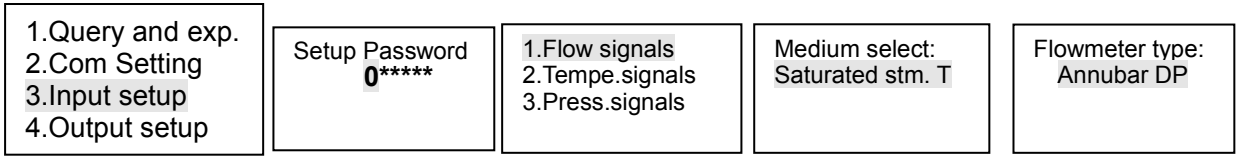
After the Flow Coefficient setting is completed, press the SET key to enter the DP scale submenu. Press the right button to move the cursor position, the up and down keys to modify the value. Press the right button to move the cursor to DP unit (Differential pressure unit), and then press Up/Down key to select different units (Pa, KPa and MPa).



After setting the differential pressure range, press the SET button to enter the Cut-off current sub-menu. Press the right button to move the cursor position, the up and down keys to modify the value. Cut-off current is set according to different flowmeters on site. Generally, do not need to set this parameter.).

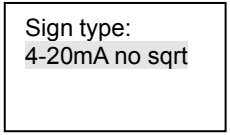
1.5.2.6 Annubar DP

In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu ,and then press Up/Down key to select “Annubar DP”.

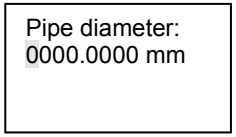


There are nine parameters in Annubar DP: Signal type, Pipe diameter, Drag coefficient, Expansibility, Flow coefficient, DP unit, DP low scale, DP high scale and Cut-off current.

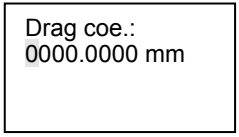
After the flowmeter type is set, press the SET key to switch to the signal type submenu. There are four signal types: 4-20mA No sqrt, 4-20mA sqrt. In this manual, it only introduces 4-20mA No sqrt, the others refer to 4-20mA No sqrt. Press Up key to select different signal types.



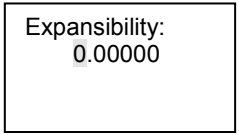
After setting Signal type, press SET key to Pipe Diameter Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



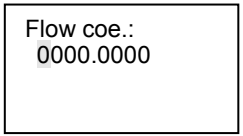
After setting Pipe Diameter, press SET key to Drag Coefficient Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.

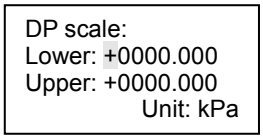


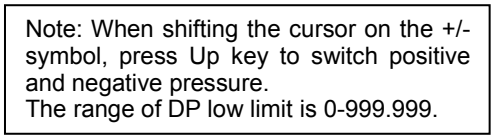
After setting Drag Coefficient, press SET key to Expansibility Submenu press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



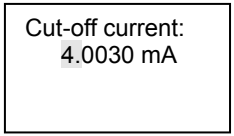
After setting Expansibility, press SET key to Flow coe. Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.







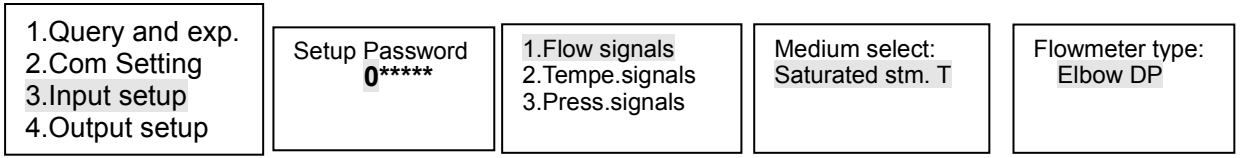
After the Flow Coefficient setting is completed, press the SET key to enter the DP scale submenu. Press the right button to move the cursor position, the up and down keys to modify the value. Press the right button to move the cursor to DP unit (Differential pressure unit), and then press Up/Down key to select different units (Pa, KPa and MPa).



After setting the differential pressure range, press the SET button to enter the Cut-off current sub-menu. Press the right button to move the cursor position, the up and down keys to modify the value. Cut-off current is set according to different flowmeters on site. Generally, do not need to set this parameter.).

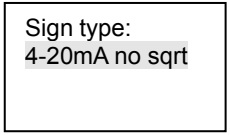
1.5.2.7 Elbow DP

In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu ,and then press Up/Down key to select “Elbow DP”.

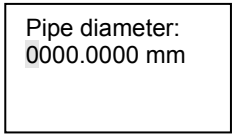


There are nine parameters in Elbow DP: Signal type, Pipe diameter, Bend radius, Expansibility, Flow coefficient, DP unit, DP low scale, DP high scale and Cut-off current.

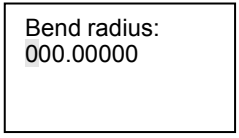
After the flowmeter type is set, press the SET key to switch to the signal type submenu. There are four signal types: 4-20mA No sqrt, 4-20mA sqrt. In this manual, it only introduces 4-20mA No sqrt, the others refer to 4-20mA No sqrt. Press Up key to select different signal types.



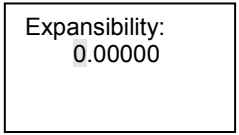
After setting Signal type, press SET key to Pipe Diameter Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



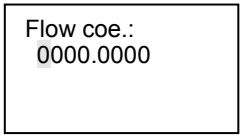
After setting Pipe Diameter, press SET key to Bend Radius Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.

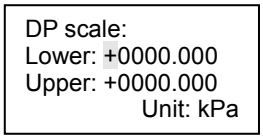


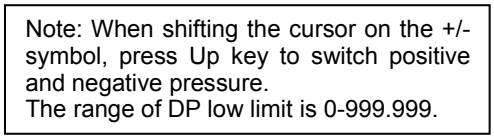
After setting Bend Radius, press SET key to Expansibility Submenu press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.



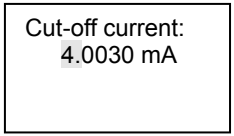
After setting Expansibility, press SET key to Flow coe. Submenu, press Right key to shift cursor on Cursor position, and then press Up/Down key to change this value.







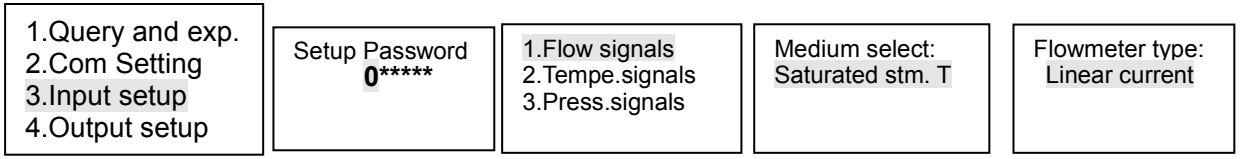
After the Flow Coefficient setting is completed, press the SET key to enter the DP scale submenu. Press the right button to move the cursor position, the up and down keys to modify the value. Press the right button to move the cursor to DP unit (Differential pressure unit), and then press Up/Down key to select different units (Pa, KPa and MPa).



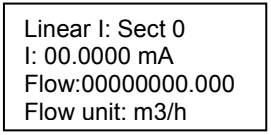
After setting the differential pressure range, press the SET button to enter the Cut-off current sub-menu. Press the right button to move the cursor position, the up and down keys to modify the value. Cut-off current is set according to different flowmeters on site. Generally, do not need to set this parameter.).

1.5.2.8 Linear current

In input setup, press Up or Down key to select flow signals submenu, press SET key to Flowmeter type Submenu ,and then press Up/Down key to select “Linear current”.



After the flowmeter type is set, Press the menu button to enter the current and the corresponding range setting。



Linear current:

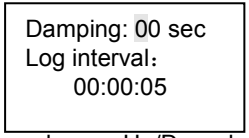
Set the segment current and the corresponding range, can be set in segments, section number is 0-9.

I: Segment current value, input range 00.0000-99.9999.

Flow: The flow value corresponding to different current segments. Input range 0000000.000-9999999.999. Press the right button to set the cursor position, up and down keys to change the value. Set the unit according to the display unit

1.5.2.9 Damping and log interval

After setting all the flow signals, press the SET button to enter the Damping Time and Log interval Time Settings submenu.

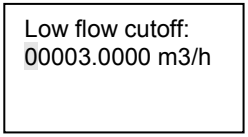


Press Right key to shift cursor, and press Up/Down key to change time value, damping time range is 0-30s.

Log record preservation interval, Hours / minutes / seconds. Setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.5.2.10 Low Flow Cutoff

After setting the damping time, press the SET key to enter the lower flow cut-off submenu.

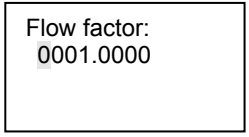


Press the right button to move the cursor, press the up / down button to change the flow cut-off value, the setting range is 0-99999.999, the unit is the same as the display unit. Low Flow Cutoff is set according to different flowmeters on site. Generally, do not need to set this parameter.

1.5.2.11 Flow factor

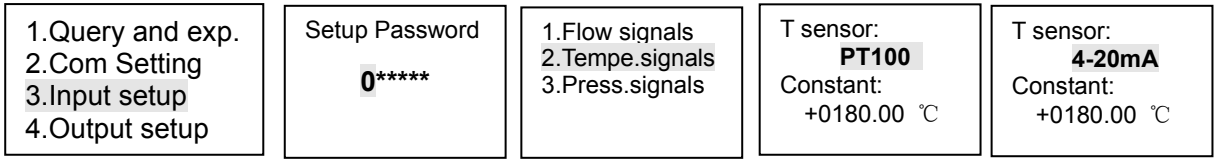
After setting the Low Flow Cutoff, press the SET key to enter the Flow factor submenu.

Press the right button to move the cursor, press the up / down button to change the flow cut-off value,

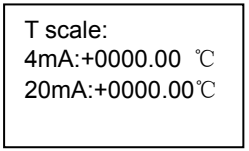


1.5.2.12 Temperature signals

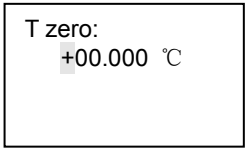
This submenu affects the performance and accuracy of instrument, please be careful when operating. Set the flow signal parameters, temperature parameters, pressure parameters. In main menu, press Up or Down key to select Temperature signals submenu, and then press SET key to enter. In input setup, press Up or Down key to select Temperature signals submenu, then press the menu button to enter.



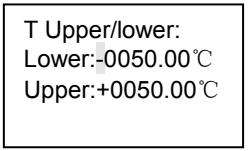
There are five temperature sensor types: Pt100, Pt1000,4-20mA, 0-10mA, setup (Setting temperature). When the T sensor is selected 4-2mA or 0-10mA signal, it needs to set the L scale (Lower scale) and H scale (Upper scale) of temperature. Press the menu key to enter the upper and lower temperature limit settings, setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.



After setting the temperature sensor and range, press the SET key to enter the temperature zero setting, setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

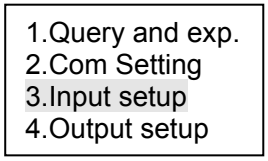


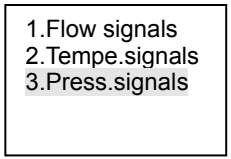
After setting the zero temperature, press the SET key to enter the upper and lower temperature limit setting submenu, If the temperature is out of the range, it will use setting temperature to compensate.

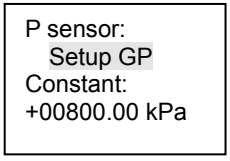


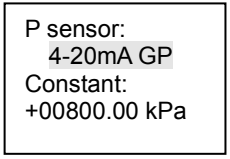
1.5.2.13 pressure signals

This submenu affects the performance and accuracy of instrument, please be careful when operating. Set the flow signal parameters, temperature parameters, pressure parameters. In main menu, press Up or Down key to select pressure signals submenu, and then press SET key to enter. In input setup, press Up or Down key to select Temperature signals submenu, then press the menu button to enter.

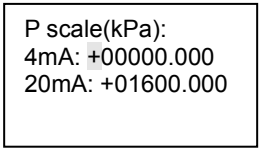




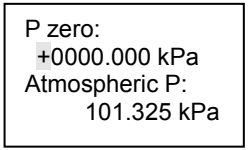




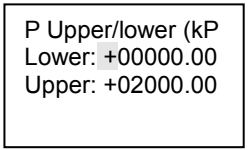
There are four pressure sensor types: 4-20mA GP (4-20mA gauge pressure), 4-20mA AP (4-20mA absolute pressure), Setup GP (Setting gauge pressure) and Setup AP (Setting absolute pressure). Press the menu key to enter the upper and lower temperature limit settings, setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.



After setting the temperature sensor and range, press the MENU key to enter the pressure zero and Atmospheric pressure setting, setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.



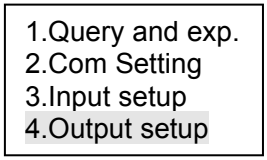
After setting the pressure zero, press the MENU key to enter the upper and lower pressure limit setting submenu, If the pressure is out of the range, it will use setting pressure to compensate.

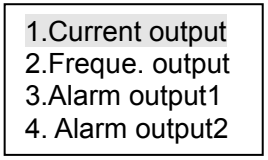


1.6 Output setup

In the main menu, press the up or down arrow key to select the output setting menu, then press the SET key to enter.

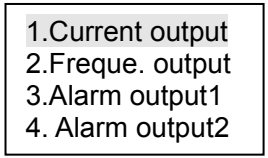
In the "Output Settings" submenu, there are current output, frequency output, alarm output. Press Up or Down to select Set Output Type and press the SET key to enter the submenu.

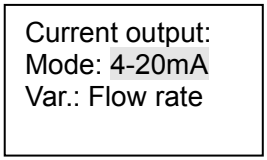




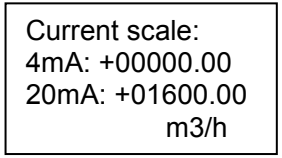
1.6.1 Current output

In the output setup menu, press the up and down keys to move the cursor to the current output, then press the SET key to enter the current output channel settings.





Current output variable
1. Flow rate
2. Temperature
3. Gauge pressure (MPa)
4. DP (differential pressure, kPa)
5. Density (Kg/m3)
6. Thermal enthalpy (KJ/kg)
7. Power (MJ/h)

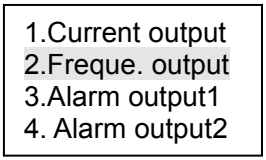


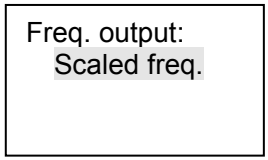
Note: When shifting the cursor on the +/- symbol, press Up key to switch positive and negative value.

After entering the current output menu, right-click to move the cursor to the output variable type. There are 7 output variables: Flow rate, Temperature, Gauge pressure, DP, Differential pressure, KPa, Thermal enthalpy KJ / kg), Power (MJ / h), press the up key to switch the output variable type. Then press the SET button to enter the variable output range upper and lower limits, setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.6.2 Frequency output

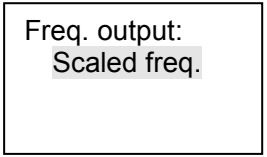
In the output setup menu, press the up and down keys to move the cursor to the frequency output, then press the SET key to enter the frequency output channel settings.

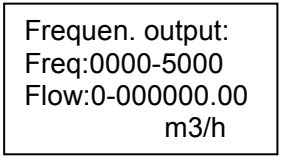




1.6.2.1 Scaled Frequency

In the output settings menu, enter the frequency output menu, the up keys to move the frequency output type to Scaled Frequency, then press the SET button to enter the frequency range corresponding to the output range setting。setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.



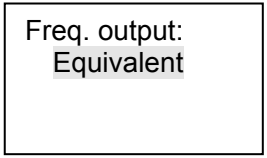


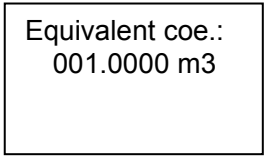
Frequency：Frequency upper and lower limits, range: 0000-5000Hz

flow：flow rate，range: 0-999999.99. Unit with the display unit

1.6.2.2 Equivalent

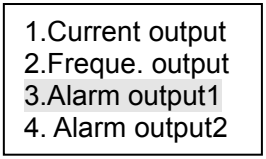
In the output settings menu, enter the frequency output menu, the up keys to move the Frequency output type to Equivalent, then press the SET button to enter the frequency range corresponding to the output range setting。setting parameters press Right key to shift cursor, and then press Up/Down key to set the values. Output flow total, when the equivalent coefficient is set to $1m^3$, the meter every $1m^3$ flow total, t hen the instrument output a pulse. range: 0-999.9999.

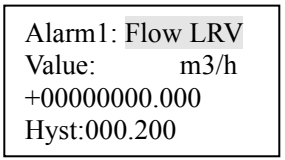




1.6.3 alarm output

In the output setup menu, press the up and down keys to move the cursor to the alarm output, then press the SET key to enter the alarm output, channel settings.





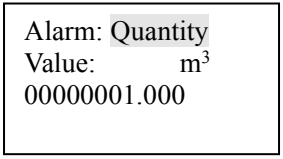
Alarm 1 variable type
1. None
2. Flow URV（Flow rate upper scale）
3. Flow LRV（Flow rate lower scale）
4. T URV（Temperature upper scale）
5. T LRV （Temperature lower scale）
6. P URV （Pressure upper scale）
7. P URV （Pressure lower scale）

1.6.3.1 alarm1 output

In the output setup menu, press the up and down keys to move the cursor to the alarm1 output, then press the menu key to enter the alarm output, channel setting. There are 7 alarm variables: none, Flow rate upper scale, Flow rate lower scale, Temperature upper scale, Temperature lower scale, Pressure upper scale, Pressure lower scale. After setting the alarm variables, set the alarm value and hysteresis value. setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.6.3.2 alarm2 output

In the output setup menu, press the up and down keys to move the cursor to the alarm2 output, then press the menu key to enter the alarm output, channel setting. There are 7 alarm variables: none, Quantity. Select Quantity (for flow total alarm), When the value is set to 1m^3. When the cumulative flow reaches 1m^3, the meter will alarm. setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.



1.7 Total reset

In the main menu, press the up or down arrow key to select the Total reset menu, then press the SET key to enter.

2.Com Setting 3.Input setup 4.Output setup 5.Total reset	Reset passwd: 0*****	Total reset: 00000000.000 m3

Note: The Total reset submenu has password protection. When inputting password, press Left key to shift the cursor, and press Up or Down key to increase or decrease the number. The default password is 000000, users can modify the password according to 1.10 Password.

1.7.1 Total reset

Enter the password to enter the total clear menu, by modifying the value of zero and modify the cumulative flow.

setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.7.2 Log reset

Log reset: No

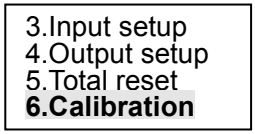
After the accumulated flow rate clear setting is completed, press the SET key to enter the log record clear.

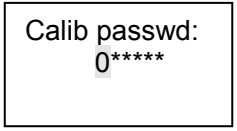
When clearing the log, press the up key to change "ON" to "yes", then press the MENU key, the log record will be cleared completely, and the meter will save the log record again.

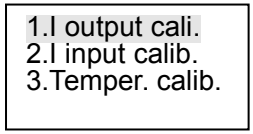
1.8 Calibration

This submenu is used to calibrate the internal analog signal, and it affects the accuracy of instrument. If there are no resistance box, standard current source, multimeter and other calibration equipment's, please do not use this submenu!

In main menu, press Up or Down key to select Calibrate submenu, and then press SET key to enter.





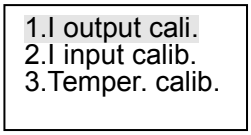


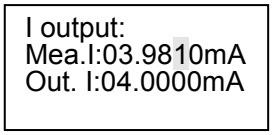
Note: The Total reset submenu has password protection. When inputting password, press Left key to shift the cursor, and press Up or Down key to increase or decrease the number. The default password is 000000, users can modify the password according to 1.10 Password.

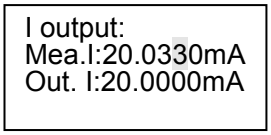
1.8.1 Current output calibrate

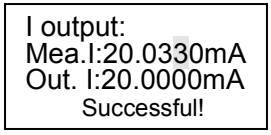
In calibrate submenu, press Up or Down key to select Current Output, and then press SET key to enter.

When calibrating, it needs multimeter to measuring the output current, and then input this current value into "mea.I".





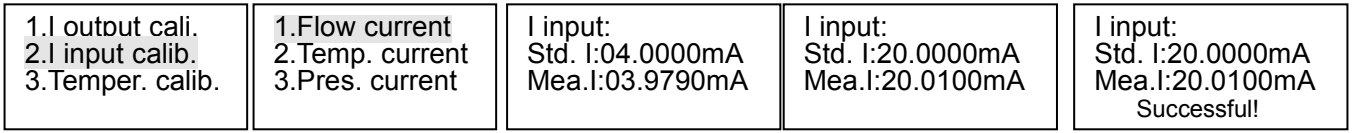




The meter adopts two-point calibration. When calibrating, the meter prompts 4mA, then the output current is about 4mA. Input the value of the multimeter into the meter, then press the SET key to enter the next point. At this moment, it indicates 20mA, then the output current is about 20mA. Multimeter to detect the value entered into the meter, and then press the SET button, the meter prompts to modify successfully. And then return to calibrate submenu. setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.8.2 Current input calibrate

In calibrate submenu, press Up or Down key to select Current Input, and then press SET key to enter. When calibrating, it needs standard current source to input current to instrument according to “Input” prompt. For example, of calibrating Flow Current, select Flow Current, and press SET key to calibrate. Input 4mA for zero-scale, the instrument will display a measuring value mea. I approximating 4mA, and then press SET key to enter full-scale. Input 20mA for full-scale, the instrument will display a mea. I approximating 20mA, and then press SET key to finish calibration. After calibration, the instrument will display “Successful”, and then return to calibrate submenu.

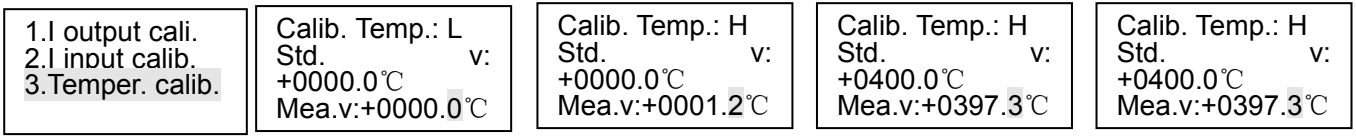


The calibration method of temperature and pressure is the same as that of Flow current.

1.8.3 Temperature Input

In calibrate submenu, press Up or Down key to select Temperature, and then press SET key to enter.

When calibrating, it needs standard resistance box to input resistance to instrument according to R value.

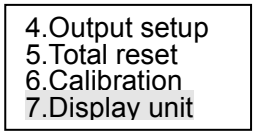


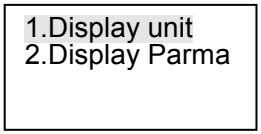
After calibration, the instrument will display “Successful”, and then return to calibrate submenu. setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.9 Display unit

In the main menu, press the up or down arrow key to select the output setting menu, then press the SET key to enter.

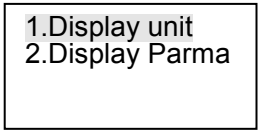
In the "Display unit" submenu, there are display unit and display param. Press Up or Down to select Set Output Type and press the Menu key to enter the submenu.

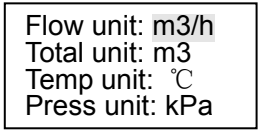




In calibrate submenu, press Up or Down key to select Display unit, and then press SET key to enter.

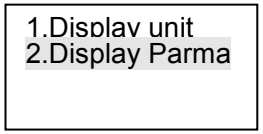
Set parameters Press the right button to move the cursor, and then press the up button to switch units.

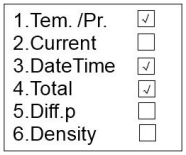


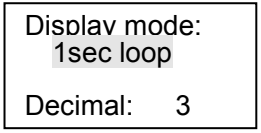


Display Unit
Flow: Nm3/h, Nl/h, Nl/m, t/h, kg/h, m3/h, l/h and l/m
Pressure: MPa and KPa
Temperature: ℃ and ℉

In calibrate submenu, press Up or Down key to select Display Parma, and then press SET key to enter.



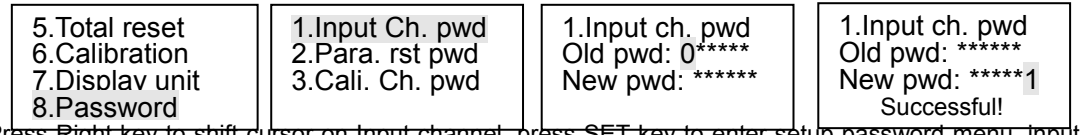




Press Right key to select display mode, and press SET key to enter. Press Right key to shift cursor on display options, and press Down key to switch the options displaying or not (√ means options displaying, else no displaying). After setting, press MENU key to return display submenu. After setting the display mode, press the MENU key to enter the cycle display interval and flowmeter display decimal point. Interval time range 1-9sec, decimal point range 0-3. setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.10 Password

In the main menu, press the up or down arrow key to select the Password menu, then press the SET key to enter.



Press Right key to shift cursor on Input channel, press SET key to enter setup password menu, input old and new passwords, and then press SET key, it will display “Successful!”. setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

The setup method of calibrate and total reset password is the same as that of Input channel password.

1.11 Date and time

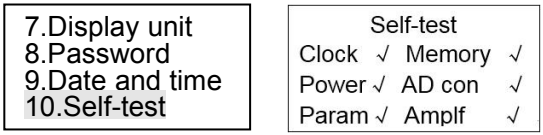
In the main menu, press the up or down arrow key to select the Date and time menu, then press the SET key to enter. setting parameters press Right key to shift cursor, and then press Up/Down key to set the values.

1.12 Self-test

In the main menu, press the up or down arrow key to select the Self-test menu, then press the SET key to enter. This submenu to check the details of running status, √ is ok,

and × means this option is abnormal.

After self-test, the display will turn to main menu.



3.0 Wirings

3.1 Terminals Definition

No.	Definition	No.	Definition
1	Flow pulse input	8	Alarm 2 normally-open
2	Pressure current input	9	AC80-220V N
3	Public GND	10	AC80-220V L
4	Pt100, B	11	RS485-A
5	Pt100, A (Temperature current input)	12	RS485-B
6	Pt100, A current input)	13	Current output+
7	Alarm 2	14	Public GND