

foreword

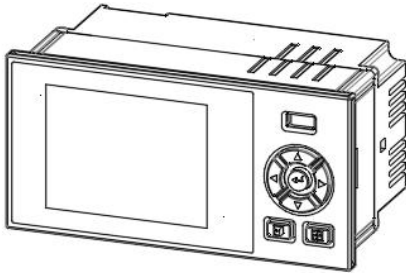
- Thank you very much for using the volumetric instrument produced by our company!
- This manual provides methods for performance indicators, installation and wiring, operation, parameter settings, fault diagnosis, and other aspects when using a volumetric instrument. Before using the volumetric instrument, please carefully read this manual and correctly master the usage methods before proceeding with specific operations to avoid unnecessary losses caused by incorrect operations.
- After you finish reading, please keep it in a convenient place for easy reference during operation.

statement

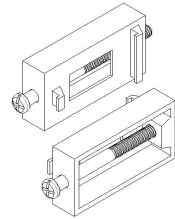
- The content of this manual may be modified without prior notice due to functional and performance upgrades.
- The content of this manual is strictly prohibited from being reproduced or copied in whole or in part.
- Our company's capital preservation manual is accurate and correct. If you find any inappropriate or incorrect content, please contact us.

Packing items

Please confirm the following before use after opening the packaging box. If you receive incorrect products, quantities, or physical damage on the appearance, please contact the supplier or our company.



Volumetric instrument



mounting bracket



Operation instructions



Product Qualification Certificate

Number	Name	Unit	Quantity	Remarks
1	Volumetric instrument	units	1	
2	Installation bracket (including screws)	pieces	2	Used for disc installation and fixation
3	Instructions	books	1	
4	Product Qualification Certificate/Warran	copies	1	

ty Card			
5	USB dust plugs	pieces	1
6	RS-232C/485 conversion module	pieces	Options
7	RS-232C communication cable	pieces	Options
8	USB drives	pieces	Options

precautions

- If any damage to the instrument is found during unpacking due to transportation, please contact the supplier or our company
- Please use a power supply with rated voltage, wire it correctly, and ground it properly. After connecting the power supply, please do not touch the wiring terminals at the back of the instrument to prevent electric shock
- Do not install in the following situations:
 - ⊙ In situations where the temperature and humidity exceed the usage conditions
 - ⊙ Places with corrosive, flammable, or explosive gases
 - ⊙ In situations where there is a large amount of dust, salt, and metal powder
 - ⊙ Places where water, oil, and chemical liquids are prone to splashing
 - ⊙ In situations where there is direct vibration or impact

- ◎ In situations where electromagnetic sources are present
- Instruments should take corresponding shielding measures in situations where they are close to power lines, strong electric fields, strong magnetic fields, generate static electricity, noise, or AC contactors, etc
- To avoid measurement errors, when the sensor is a thermal resistor, three copper wires with the same specifications and a resistance value less than 10 Ω should be used, otherwise it will cause measurement errors
- To extend the service life of the instrument, please perform regular maintenance and upkeep. Please do not repair or disassemble the instrument by yourself. When wiping the instrument, please use a clean soft cloth and do not dip it in organic solvents such as alcohol or gasoline to clean, as it may cause discoloration or deformation
- If the instrument has water ingress, smoke, odor, abnormal noise, etc., please immediately cut off the power supply, stop using it, and contact the supplier or our company in a timely manner

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Chapter 1 Overview

■ Overview

Volumetric instruments are based on ARM microprocessors and are used for measuring, collecting, displaying, transmitting, and communicating liquid volumes, forming a digital acquisition system and control monitoring system.

■ Characteristics

- ⊙ Applicable level gauge.
- ⊙ Audit records: Power outage recording function.
- ⊙ Alarm List: Supports recording temperature alarm information.
- ⊙ Communication function: Standard Modbus RTU protocol, supporting RS485 and RS232C communication functions.
- ⊙ Transmission function: Supports standard current transmission output, with optional signal source channels.
- ⊙ Import and export function: Supports the import and export of instrument configuration parameters.
- ⊙ Timer printing function: Supports timed printing of data.

Chapter 2 Technical Indicators

■ Display

Screen: 480 * 272 dot matrix color LCD display (LCD)
Accuracy: Display and measurement accuracy: $\pm 0.2\%$ F.S

■ Processor

Adopting high-performance ARM Cortex-M3 32-bit RISC core

■ Tank model

Tank models: horizontal tank, vertical tank, spherical tank, square tank.

■ Input function

Liquid level channel: 0-10mA, 4-20mA

Temperature channel: 0-10mA, 4-20mA, Pt100, N, E, J, K and other signals

pay attention to

⊙ Other input signals (such as switch input (DI)) should be specified when ordering

■ Output function

Distribution output: Provide 1 set of (Q24) 24VDC sensor power supply, with a maximum output current of 30mA per channel

Transmission output: Supports 1 standard current transmission output (source optional), load capacity 500 Ω (maximum)

Relay output: Supports up to 3 relay outputs with contact capacity

3A@250VAC / 3A@30VDC , configurable upper limit, upper limit, lower limit, and lower limit alarms

■ Communication function

Communication Interface: Provides two communication interfaces, RS232C

and RS485, for users to choose from, supports Modbus RTU protocol, baud rate - (1200, 4800, 9600)

■ Report backup

Report backup and transfer: Supports USB 1.1 and 2.0 protocols, supports transferring from 1GB to 32GB USB drives, has strong compatibility, and is compatible with the vast majority of USB drives on the market

■ Storage

Using high-capacity flash memory chips to store historical data and serial storage chips to store system configuration parameters

Recording capacity: 32MB

Record interval: 1 to 60 minutes, divided into 11 levels

1/2/3/4/5/10/20/30/40/50/60 minutes to choose from

Recording time: The length of recording time is related to the capacity of FLASH memory and the recording interval of input points. The calculation formula is as follows (the unit of numerical input should be consistent with the formula):

$$\text{Record the number of days} = \frac{\text{FLASH capacity(MB)} \times 1024 \times 1024 \times \text{Recording intervals(second)}}{\text{Number of channels} \times 16 \times 24 \times 3600} \quad (\text{days})$$

■ Power supply

AC power supply: 220VAC/50HZ AC power supply

DC power supply: Supports 9VDC-36VDC DC power supply, DC power supply needs to be specified when ordering

■ Error accuracy

Clock error: ± 2 seconds/day

■ Work environment

Environmental temperature: 0-50 °C (avoid direct sunlight)

Environmental humidity: 0-85% R.H (no condensation)

Altitude: <2000 meters

■ Net weight of the instrument

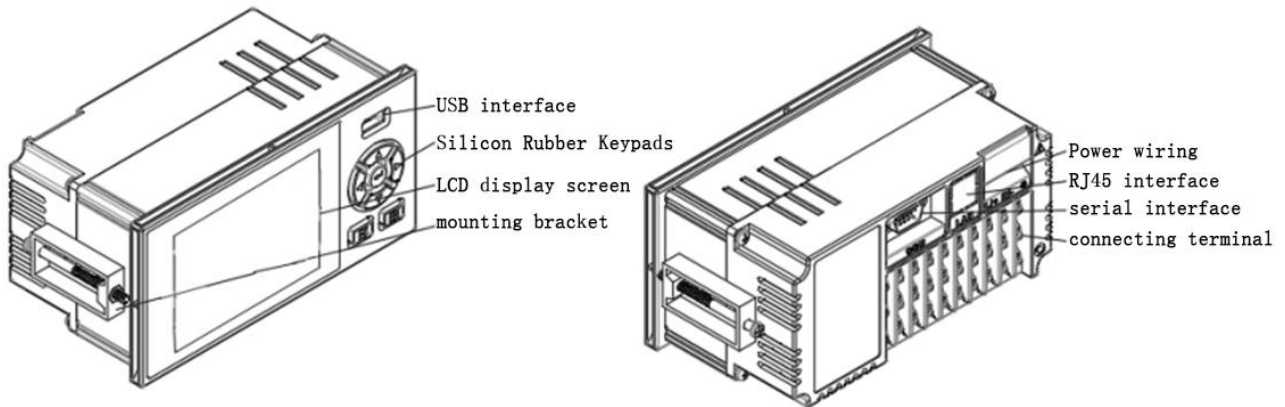
Net weight: $\leq 1.0\text{Kg}$

pay attention to

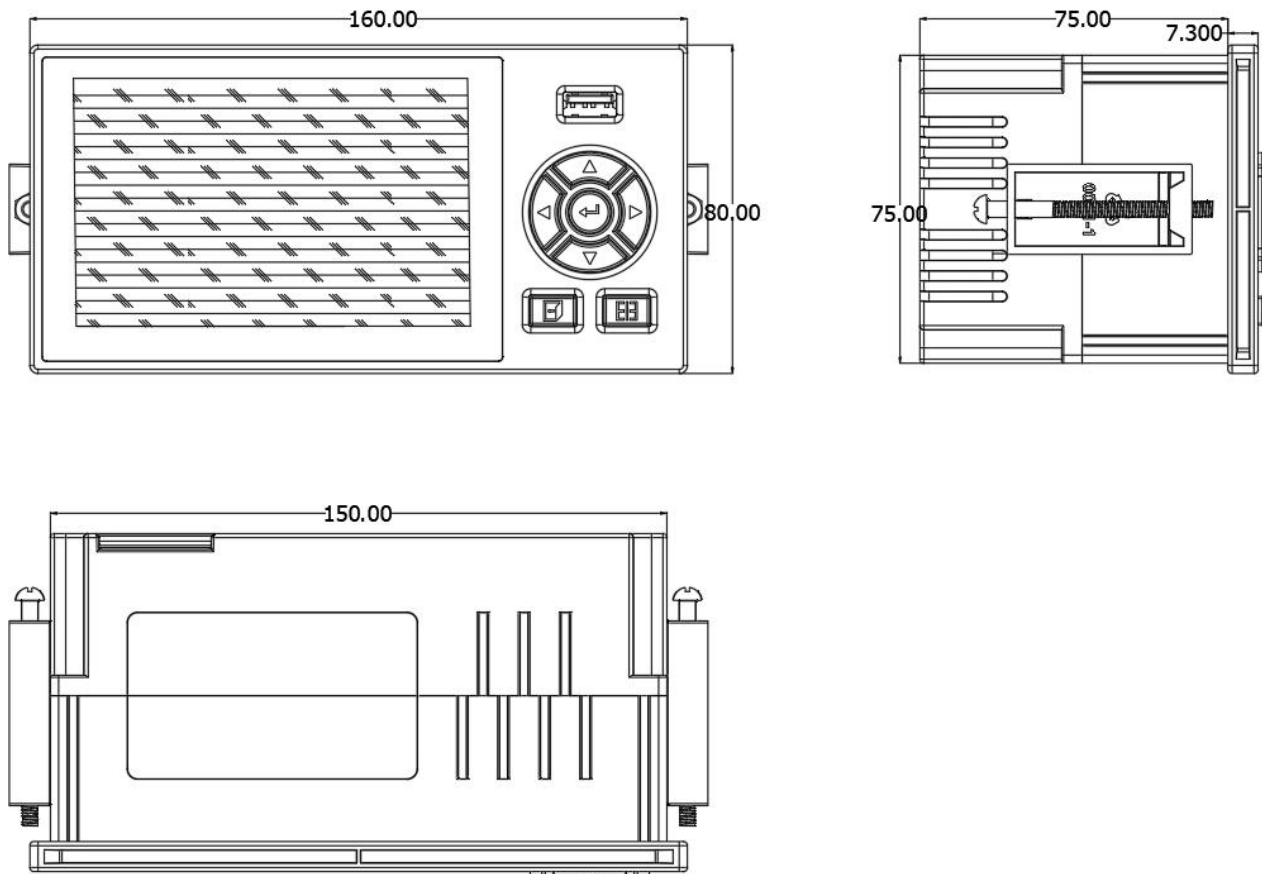
- ⊙ The technical indicators are universal indicators for this series of instruments, and the functional configuration should be based on the actual product.
- ⊙ If there is any inconsistency between the technical indicators and the physical instrument, please refer to the physical object.
- ⊙ Do not work in flammable or corrosive environments

Chapter 3 Installation and Wiring

3.1 Instrument Structure

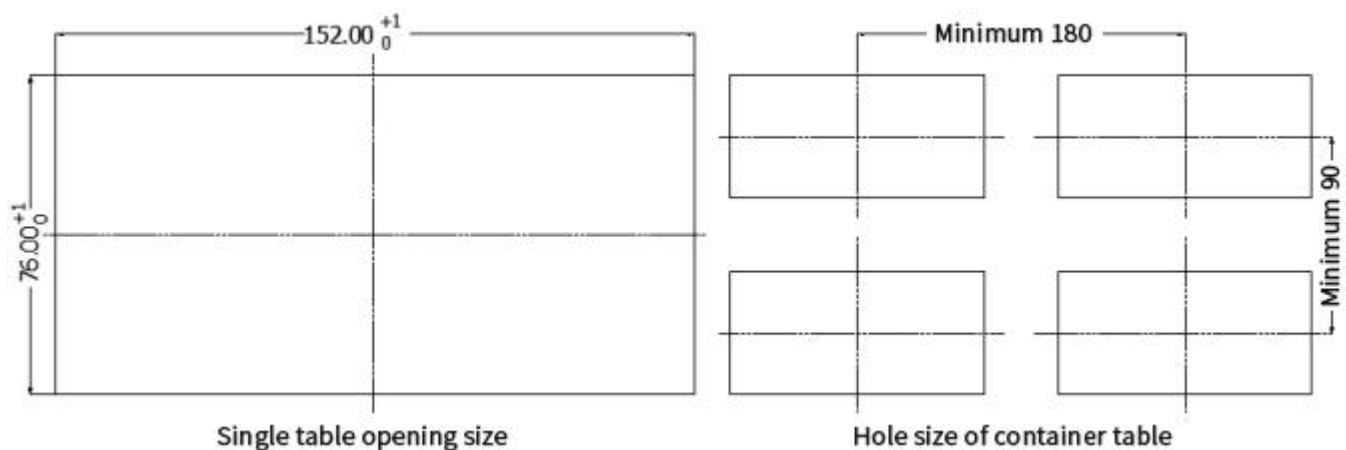


3.2 Instrument size



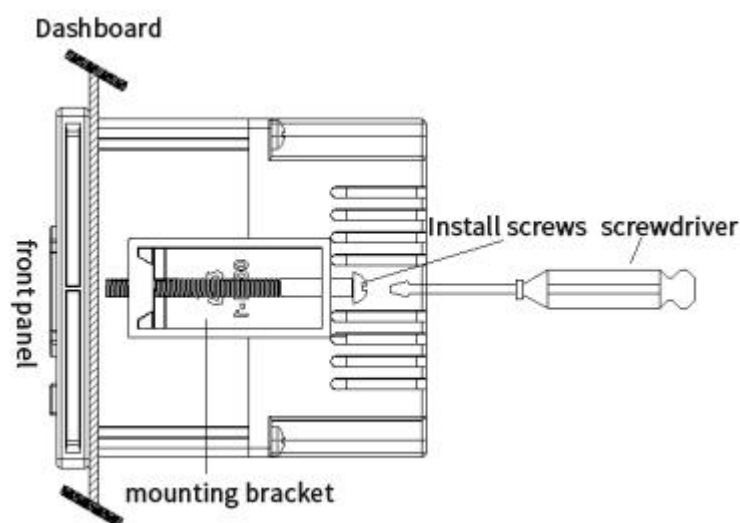
The unit shown in the above diagram is mm.

3.3 Dimension



When installing the container meter, the recommended minimum spacing between instruments in the above diagram should be referred to to ensure necessary heat dissipation and loading and unloading space. The unit in the above diagram is mm.

3.4 instrumentation



Installation method:

- ⊙ Step 1: Push the instrument into the installation hole from the front of the installation panel (please use a steel plate). The thickness of the installation panel is (1.5~6.5) mm.
- ⊙ Step 2: Install the instrument panel using the mounting bracket as

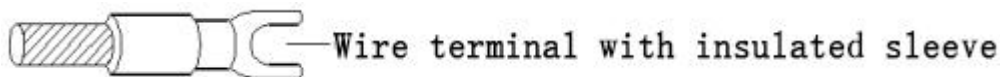
shown in the diagram above (one bracket is installed on each side of the instrument panel, and the screws used for the instrument panel mounting bracket are M4 standard screws).

- ⊙ Step 3: After the instrument panel is installed, the signal and power lines can be connected.

3.5 Instrument wiring

■ Wiring method

It is recommended to use U-shaped crimping terminals with insulation sleeves (M3.5 screws for power terminals and M3 screws for signal terminals).



To improve the safety of the instrument, please follow the following warnings when wiring:

pay attention to

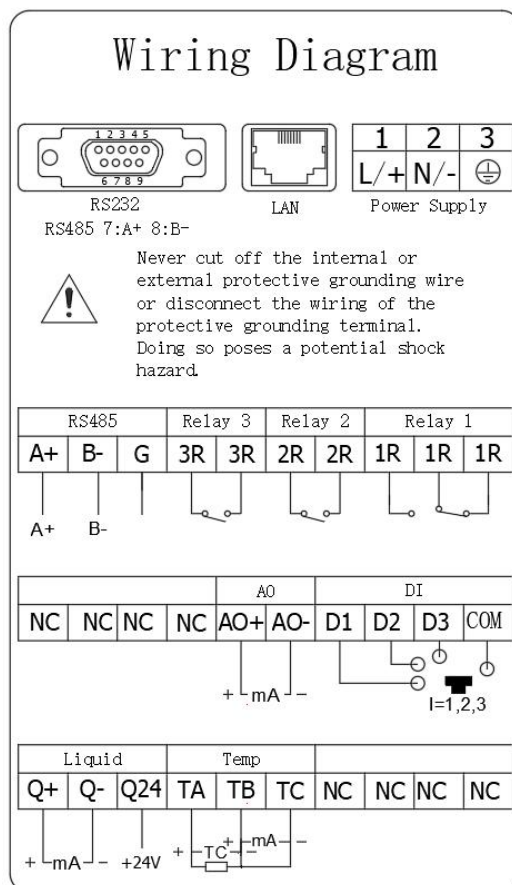
- ⊙ To prevent electric shock, please confirm that the power supply has been cut off before wiring.
- ⊙ To prevent fires, please use double insulated wires (for power lines, it is recommended to use wires with a cross-sectional area of $\geq 1\text{mm}^2$ and insulated 600V); The output wiring of the relay should have strong voltage resistance and a wire with a cross-sectional area of $\geq 0.5\text{mm}^2$.
- ⊙ Please install an air switch in the power circuit to separate this meter from the main power supply.
- ⊙ Tighten the terminal screws firmly. Tightening torque: 0.5N. m (5kgf. cm).

- ⊙ After connecting the power cord, the power supply should be connected to check if the instrument is functioning properly. Before that, do not connect the signal line. After confirming that the instrument is working properly, disconnect the power supply before connecting the signal line.
- ⊙ The measurement circuit and power circuit need to be laid separately, and it is best that the measurement object is not an interference source. If it cannot be avoided, please isolate the measurement object and the measurement circuit, and ground the measurement object.
- ⊙ For interference caused by static electricity, it is better to use shielded wires.
- ⊙ For interference caused by electromagnetic induction, it is better to densely connect the measurement circuit wiring at equal distances.
- ⊙ If the input wiring is connected in parallel with other instruments, it will affect the measured values. When parallel connection is necessary, please be careful not to turn on or off the power supply of one instrument during operation, as this will have adverse effects on other instruments. Thermistors cannot be parallel in principle, and current signals cannot be parallel in principle.
- ⊙ When inputting platinum resistance, the resistance of each lead should be less than 10 Ω (with the same lead resistance).

■ Terminal Description

Terminal name	describe
L/+、N/-、  or +、-、NC	L is the phase terminal of the AC power supply, N is the neutral terminal of the AC power supply,  For the grounding terminal, + is the positive terminal of the DC power supply, and - is the negative terminal of the DC power supply
A+、B-、G	Signal transmitter, receiver, and communication ground of RS485 communication interface
R1、R2、R3	Relay output interface, specification 250VAC/3A@30VDC /3A
AO+、AO-	Positive and negative terminals of current output
Q+、Q-、Q24	Signal terminal, signal ground terminal, and 24VDC feed input terminal of the liquid level gauge (current)
TA、TB、TC	Temperature channel analog input terminals (TA, TB, TC); Signal terminal (TB) and signal ground terminal (TC) of temperature transmitter (current)
COM	RS232C communication interface/serial port printing interface (where pin 7 is the RXD instrument signal receiver, pin 8 is the TXD instrument signal transmitter, and pin 5 is the signal ground terminal)

■ Wiring diagram

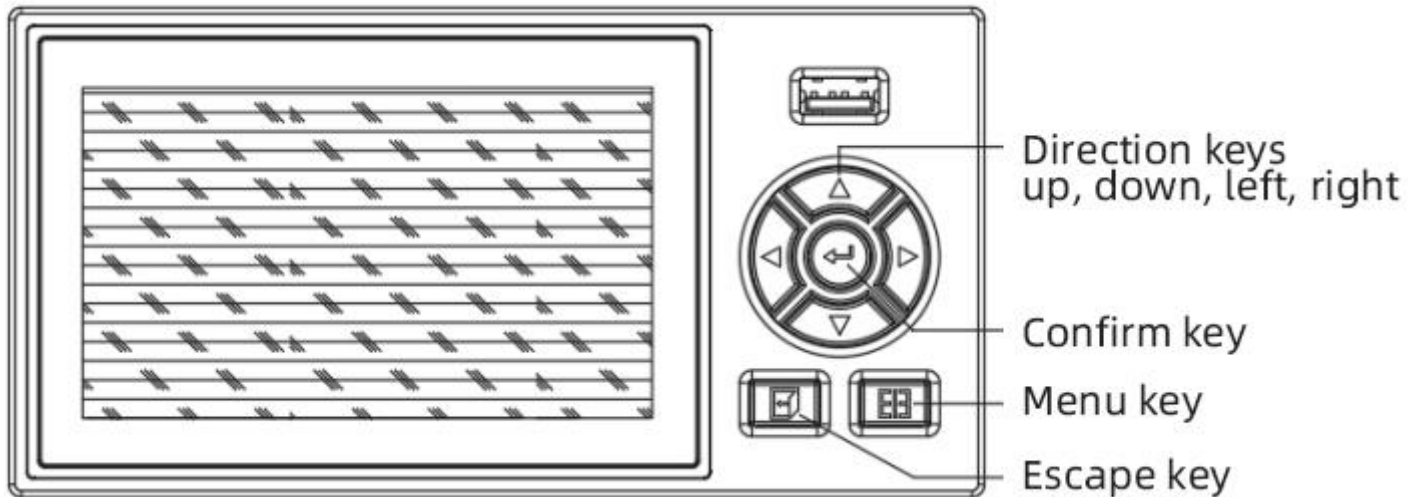


pay attention to

- ⊙ When the power consumption of the transmitter exceeds the local feeding load capacity, please use an external voltage regulator to supply power.
- ⊙ Please do not plug or unplug communication cables with power on.
- ⊙ This instruction provides a basic wiring diagram. In case of any conflict between the instrument function and the basic wiring diagram, please refer to the actual product.

Chapter 4 Basic Operations and Operation Screen

4.1 Instrument buttons



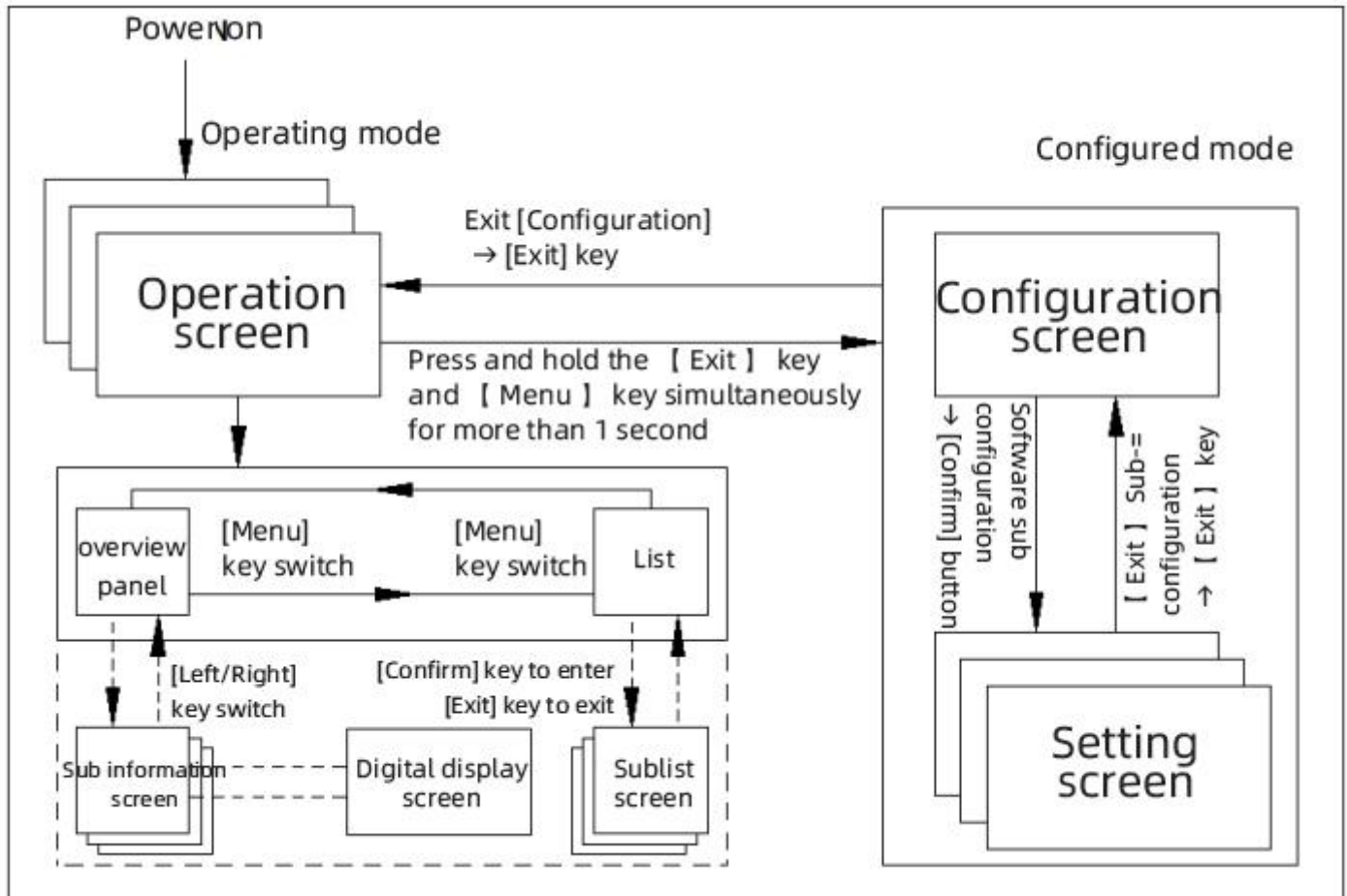
■ Keyboard function

- ⊙ Up key: Move the cursor up, switch selections, increase the data value where the cursor is located, etc.
- ⊙ Down arrow key: Move the cursor down, switch selections, decrease the data value where the cursor is located, etc.
- ⊙ Left arrow key: Move the cursor left/forward, switch between main/secondary screens, etc.
- ⊙ Right arrow key: Move the cursor to the right/back, switch between main/secondary screens, etc.
- ⊙ Confirm key: Execute the function where the cursor is located or edit the data where the cursor is located.
- ⊙ Exit key: Exit the current screen.
- ⊙ Menu key: Switch the main display screen (overall overview, function query screen), switch the decimal point at the cursor location

(instrument coefficient, density and other parameters), etc.

- ⊙ Exit key+menu key: Configuration composite key, hold down for 1 second or more at the same time to enter the configuration screen.

4.2 Usage mode

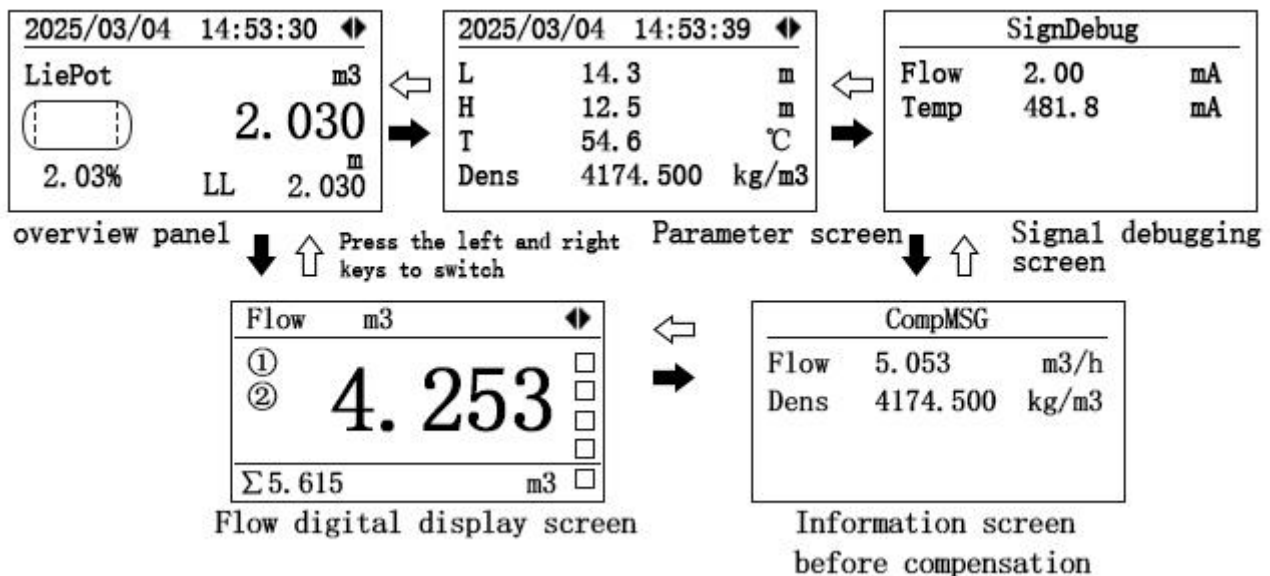


pay attention to

- ⊙ The operation screen includes an overview screen and a query screen. The operation screen can be switched by pressing the [Menu] key.
- ⊙ When in the overall screen, you can press the [Left] or [Right] key to switch to the sub information screen.
- ⊙ When in the query screen, you can press the 【 confirm 】 key to enter the sub function screen, and press the 【 exit 】 key to return to the query screen.

4.3 Operation screen

■ Overall picture



The default power on of this device is the overall display screen. When in the overall display screen, press the [Left] or [Right] key to switch between sub information screens, and press the [Confirm] key to switch between automatic/manual display functions.

- Status bar: Display the current system time and automatic/manual patrol indicator (where  is the automatic patrol indicator and  is the manual patrol indicator).
- The overall screen displays the tank mode, and the signal debugging screen displays the raw data of liquid level, distance, temperature, and density signals.
- When the temperature input is disconnected or exceeds the physical measurement limit of the instrument, the instrument displays the word "----" at the corresponding position; The internal calculation adopts the set value of disconnection.

- When the temperature is given, the temperature display in the relevant screen shows the given value.

pay attention to

- ⊙ After setting the [Patrol Display] parameter, automatic patrol display can be performed between the traffic overview and the intermediate parameter screen. When the patrol display time is set to 0 seconds, the patrol display flag in the status bar is fixed as the manual patrol display flag.

■ Digital display screen

When in the digital display screen, press the up and down arrow keys to manually switch between sub digital display screens, and press the menu key to switch to the function query screen.

- Status bar: Display channel name, unit, signal type/given (when temperature is given, [given] is displayed here).
- When different models are selected for the tank body, the relevant parameters in the digital display screen shown in the above diagram also change accordingly.
- When the relay is activated, its status symbol changes from a hollow circle to a solid circle, and when the system alarms, its status symbol changes from a hollow box to a solid box.

pay attention to

- ⊙ When the system does not compensate, does not enable transmission output, or does not enable alarm functions, the relevant interfaces and

signs will not be displayed.

- ⊙ Setting [Display]: When the display is not in 0 seconds, automatic display switching can be performed between each digital display screen according to the set time. When the display time is set to 0 seconds, the automatic display flag will not be displayed

■ Query Screen

When in the function query screen, press the 【 confirm 】 key to enter the sub function screen where the cursor is located, and press the 【 menu 】 key to switch to the overall screen; When in each sub function screen, press the 'Exit' button to exit to the function query screen.

◆ Report backup screen:

- Backup type: historical data, historical list.
- File Name: The name of the backup file is fixed and cannot be changed.
The historical data is BIN, and the historical list is CSV
- Device status: Display the status of the USB flash drive, divided into online, offline, and error states. If the USB flash drive cannot be detected, it will display 'offline'. If an error occurs during the backup process, it will display 'error'.
- Backup progress: Real time display of the current backup process progress, with the filled area representing the currently backed up portion, and the backup progress percentage value in the upper right corner of the progress bar.

◆ Log List Screen: Alarm Log

- Alarm/Cancellation Time: In each group of alarm information in the alarm list, the upper row is the alarm time and the lower row is the cancellation time. When there is no cancellation, it displays --/--: --.
 - Alarm number: Up to 24 sets of alarm information can be saved, and a single screen can display up to 3 sets of information.
 - Alarm types: HH for upper limit alarm, HI for upper limit alarm, LO for lower limit alarm, LL for lower limit alarm.
- ◆ Log List Screen: Power Failure Log
- Power off/power on time: In the power off list, the top row represents the power off time and the bottom row represents the power on time for each group of power off information.
 - Power failure serial number: Up to 24 sets of power failure information can be saved, and a single screen can display up to 2 sets of information.
 - Total number of shutdowns: Refers to the total number of power outages.
 - Total downtime: Refers to the total accumulated time of power failure, measured in minutes.
- ◆ Log list screen: Configuration log records detailed content of each instrument operation
- ◆ Log list screen: Version information records instrument version number and usage instructions
- ◆ Recalling the Curve Screen:
- Memory data: The instrument records the channel display value corresponding to the current memory time and date.

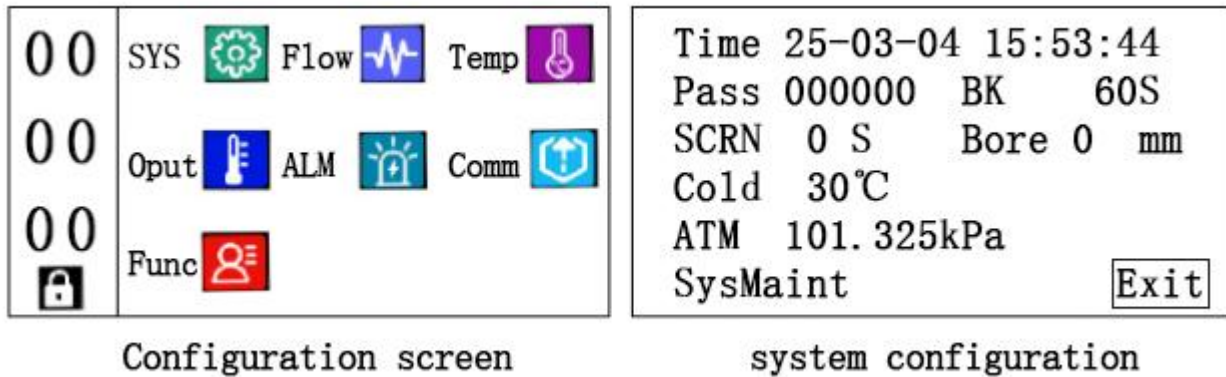
- Display the engineering signal corresponding to the channel.
- Time scale: 2M represents a small square with a 2-minute curve segment.
- Curve ruler: Display the percentage ruler of the curve, corresponding to the percentage value on the left side of the historical curve screen
- ◆ Memory List Screen:
 - Recalling data: The instrument displays the numerical value of the channel signal corresponding to the current time and date based on the current data

pay attention to

- ⊙ After clearing the alarm list and power failure list, the data in the corresponding screen will be cleared. The alarm list and power failure list records will follow the first in, first out principle. Please make proper records of the corresponding list data.
- ⊙ The recall curve displays a single signal curve, and changing the curve requires switching the display channel

Chapter 5 Parameter Setting and Auxiliary Screen

5.1 Configuration and system configuration



■ Configuration

- Press and hold the 【 Exit 】 and 【 Menu 】 keys simultaneously for more than one second to enter the 【 Configuration 】 entrance. Press the 【 Exit 】 key to return to the overall screen, and press the 【 Direction 】 key to switch the cursor between sub configurations.
- The initial password for 'Configuration' is 00 00 00. After entering the correct password, press the 'Confirm' button to enter the hierarchical menu, and then select the corresponding sub configuration entry for configuration settings. If the lock is not opened, it means that the password is incorrect or has not been confirmed. If the password is incorrect, you cannot enter the configuration screen.
- The 'Configuration' adopts a hierarchical menu structure, with functions such as configuration login password input, system configuration, tank configuration, temperature configuration, output configuration, alarm configuration, communication configuration, and function configuration.

- Operation: Press the [arrow key] to move the cursor, press the [confirm key] to execute the function where the cursor is located, and press the [exit key] to quickly exit the configuration screen.

■ System configuration

Move the cursor to the [System] entrance in the [Configuration] screen, press the [Confirm] key to enter [System Configuration], and draw:

- Time setting: Set the system date and time of the instrument.
- User password: Set the user management configuration permission password.
- Patrol interval: used for switching between primary and secondary screens in digital display and other screens. 0S represents no patrol. Press the [confirm] button to enter the 'auxiliary interface' for quick parameter changes.
- Local atmospheric pressure: Local environmental pressure, user-defined configuration, fixed unit in kPa, initial default value is 101.325KPa (i.e. 0.101325MPa).
- System maintenance:

BackUp-Cfg	LCD-Adj
Default-Cf	LCDLamp
Clr RMBList	Format
Clr Pow. Alm	English

system maintenance

System maintenance functions such as [Clear Power Failure List], [Clear Alarm List], [Format], or [Clear Log Information] will clear relevant data or

format once confirmed during system maintenance, and the process is irreversible. Please operate with caution.

- Operation: Press the left or right arrow key to move the cursor, press the up or down arrow key to switch between selecting or adjusting values, press the confirm key to execute the function or edit the data where the cursor is located, and press the exit key to quickly exit the system configuration.
- Backup/restore parameters: used for on-site engineering applications to prevent accidental modification of parameters.

pay attention to

- ⊙ The user password is the only password used to enter and modify configuration parameters. If lost, it cannot be accessed. Users should change their password as soon as possible after purchasing the instrument and keep it properly. If unfortunately lost, please contact the supplier or our company in a timely manner.
- ⊙ Restoring factory settings will initialize all configuration information and clear all stored data in the instrument, including power failure list information, alarm list information, etc. Please operate with caution.

5.2 Flow configuration

Mode	LiePot	WeirGroove
Unit	m3	ParamSet
RGE	9999.999	Num 3
K	1.000	Medium
Cum.	Trad	K... Exit

Flat jar model

Mode	StaPot	WeirGroove
Unit	m3	ParamSet
RGE	9999.999	Num 3
K	1.000	Medium
Cum.	Trad	K... Exit

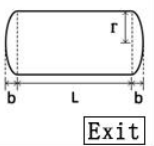
Vertical jar model

Mode	BalPot	WeirGroove
Unit	m3	ParamSet
RGE	9999.999	Num 3
K	1.000	Medium
Cum.	Trad	K... Exit

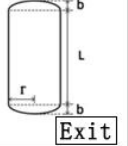
Spherical tank model

Mode	Squtan	WeirGroove
Unit	m3	ParamSet
RGE	9999.999	Num 3
K	1.000	Medium
Cum.	Trad	K... Exit

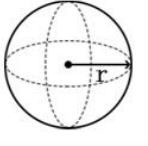
Square pool model

LiePot	
r:1000 mm	
b:100 mm	
L:1000 mm	
	Exit

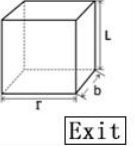
Reference diagram

StandPot	
r:1000 mm	
b:100 mm	
L:1000 mm	
	Exit

Reference diagram

BallPot	
r:1000 mm	

Reference diagram

SquareTank	
r:1000 mm	
b:100 mm	
L:1000 mm	
	Exit

Reference diagram

◆ Model

- The horizontal or vertical cylindrical container models are widely used in multiple industries, mainly for storing liquids.
- The [spherical tank type] model has strong capacity, pressure bearing capacity, small surface area, and saves steel, and is used for storing and transporting liquids.
- The square pool model is suitable for routine analysis in the ultraviolet/visible region and is widely used in experiments in fields such as chemistry and biology.

◆ Media configuration

From the commonly used flow calculation formulas, it can be seen that the flow rate of a fluid is directly proportional or square root proportional to its density. In order to accurately measure the flow rate of a fluid, it is necessary to compensate for the density of the fluid. However, most fluid densities change with the temperature of the operating conditions, so compensating for fluid density can be converted into compensating for the temperature of the fluid.

◆ Range

User defined flow range, freely configurable, supports up to 9999999.

Press the confirm button to enter the auxiliary screen for parameter change operations.

◆ Number of decimal places

The decimal places of the flow range can be grouped from 0 to 4.

◆ K coefficient

The default is 1.000, used for linear correction.

5.3 Temperature configuration

Mode	Ext	Type	4-20mA
Unit	°C	F.	0 S
DF	1	Adj	0.0
RGE	-99.9~850.0		
Cut	0.0		Exit

Temperature compensation
configuration

Mode	Set
SetVal	20.0 °C
Exit	

Temperature given
configuration

◆ Method

When temperature compensation is input from an external sensor, select [External Compensation] as the method. When given internally, set the given temperature at [Given Value] and select the method using the [Up] or [Down] keys.

pay attention to

- ⊙ When the temperature is disconnected, the system automatically calls the set value [non-zero value] as the disconnection compensation value.
If the set value is zero, the system automatically defaults to the last

collected value before disconnection as the disconnection compensation value.

- ⊙ Under the given method, the unit cannot be changed. If you need to change the unit, you need to do so under the input method of [Supplementary].
- ⊙ When using the [Given] mode, the default range upper and lower limits of the digital display screen are the range upper and lower limits under the external mode. Users can set these range upper and lower limits themselves to constrain the proportion of the given value in the bar chart of the upper computer or instrument digital display screen to achieve the best display effect.

◆ Type

The input signal type should be consistent with the signal of the primary instrument or detection component when setting the signal type.

◆ Unit

The temperature engineering unit currently only supports °C, and can be customized and added according to user needs.

◆ Filtering

The setting of filtering time helps to improve the smoothness of the signal, with a range of 0-99 seconds. The longer the filtering time, the smoother the signal but the slower the response.

$$\text{Display Value} = \frac{\text{Last measurement value} \times \text{filter time constant} + \text{This measurement value}}{\text{filter time constant} + 1}$$

◆ Number of decimal places

Scale decimal places, 0-3 can be grouped.

◆ Adjustment

Allow users to adjust the deviation value of the displayed value, which is equal to the measured value plus the adjusted value. Generally, the adjusted value should be set to 0.

◆ Range

User defined temperature/pressure range, freely configurable. Press the confirm button to enter the auxiliary screen for parameter change operations.

◆ Removal

When the measured value is less than (range upper limit value - range lower limit value) x small signal percentage value + range lower limit value, the measured value is displayed as the range lower limit value.

5.4 Output configuration

5.4.1 Current output configuration

Chnl	04	Type	4-20mA
REL	P	Adj	0.0
RGE	0.000	~	99.999
Source	Flow		
Exit			

Output Configuration

Chnl	04	Type	4-20mA
REL	P	Adj	0
RGE	0	~	99999
Source	Heat		
Exit			

Output Configuration

◆ Type

Select the type of transmission output signal.

◆ Function

When the transmission output range (range) is not changed by default, AO acts positively, and the upper limit of the transmission range corresponds to the upper limit of the transmission output current, while the lower limit of the transmission range corresponds to the lower limit of the transmission output current; Under the reaction of AO, the upper limit of the transmission range corresponds to the lower limit of the transmission output current, and the lower limit of the transmission range corresponds to the upper limit of the transmission output current.

◆ Transmission range [range]

- Lower limit of transmission range: the source channel sampling measurement/operation value corresponding to the lower limit of transmission current;
- Upper limit of transmission range: the source channel sampling measurement/operation value corresponding to the upper limit of transmission current;

The upper and lower limits of the transmission range can be freely configured, and the calculation formula for transmission current is as follows:

$$\text{output current} = \frac{\text{source channel sampling measurement values} - \text{lower limit of transmission range}}{\text{upper limit of transmission range} - \text{lower limit of transmission range}} \times (\text{current upper limit} - \text{lower upper limit}) + \text{lower upper limit}$$

◆ Signal source

Set the transmission output signal source channel, optional. Automatically hide the transmission range when there is no signal source.

5.5 Alarm configuration

A L M	Flow	Temp
	Cum Flow	PRES
	Heat	V.
	Cum Heat	Time

Alarm configuration

HH: 850.0	REL: Nu
HI: 435.0	REL: 01
LO: 46.0	REL: Nu
LL: -99.9	REL: Nu
Dela: 1.0%	Exit

Alarm configuration
– instantaneous value category

◆ Instantaneous value upper and lower limit class

- Alarm threshold: HH, HI, LO, LL are the upper limit, upper limit, lower limit, and lower limit alarms, respectively. The alarm threshold corresponds to the subsequent value. The actual data will only generate or eliminate the alarm signal when it exceeds the corresponding limit and the sum or difference of the return difference.
- Alarm contact: Relay number, for example, contact 01 represents relay 01. When the signal value exceeds the alarm set value, the relay corresponding to the contact number will activate and the contact will close. If 'none' is selected, it means that the relay will not operate regardless of whether the signal exceeds the limit, but there will still be alarm records in the alarm list.
- Alarm hysteresis: Alarm hysteresis is used to prevent the instrument from repeatedly alarming near the alarm point. For example, if the range is set to 0~100, the high alarm point is 80, the low alarm point is 20, and the alarm hysteresis is set to 5.0%, the instrument will only cancel the alarm

when the measured value/calculated value is less than $80-100 * 5\%=75$ after a high alarm occurs. Similarly, when a low alarm occurs, the instrument will only cancel the alarm when the measured value/calculated value is greater than $20+100 * 5\%=25$.

◆ Delay

Set the range from 0 to 99 seconds, and there is no alarm delay function when it is 0.

When the measured value exceeds the alarm set value, the alarm delay is activated. If the measured value remains in the alarm state during the alarm delay, the alarm contact signal is output when the alarm delay ends.

Otherwise, the alarm contact signal is not output.

5.6 Communication Configuration

Mode	P	C	Addr	001
Stop	1	B	CKS	Null
Baud	9600			
				Exit

Communication Configuration
-PC Machine

■ Communication configuration

The instrument supports communication operations with the upper computer, enabling real-time monitoring of the instrument.

- Online address: The communication online address is used to distinguish between instruments when forming a network, and is the identifier of the instrument in the network. The upper computer software uses this to

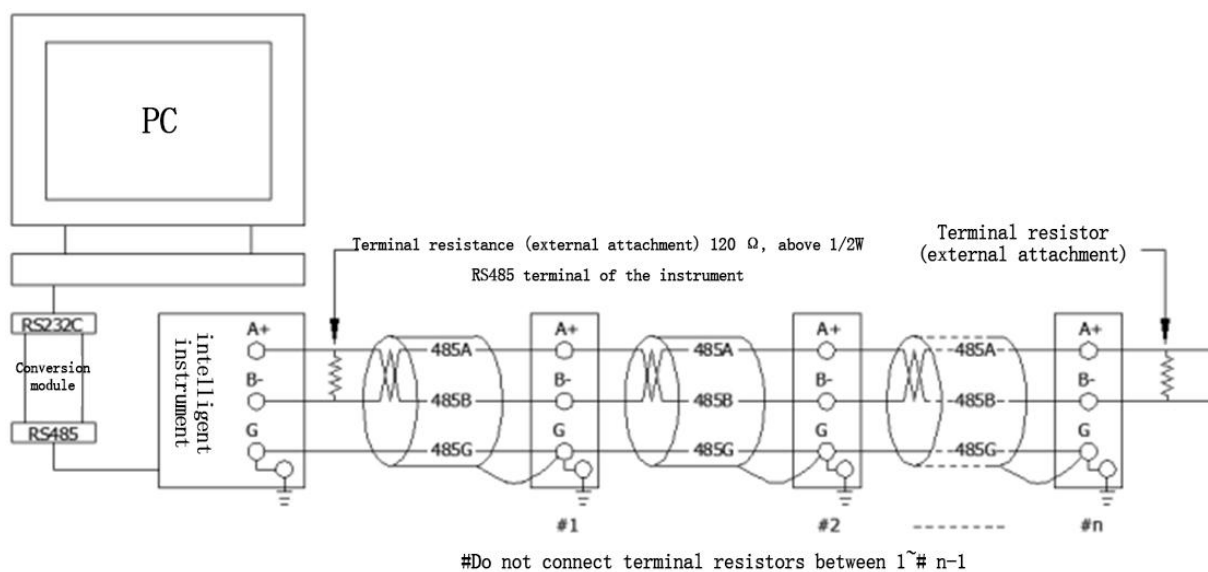
access the instrument; The local address in the same communication network can be set between 001 and 255 and cannot be duplicated.

- Baud rate: When using [PC machine] mode, baud rates can be selected (1200, 4800, 9600).
- Verification method: no verification/odd verification/even verification, default odd verification.
- Stop bit: 2 bits/1 bit, default 2 bits.

■ Communication wiring

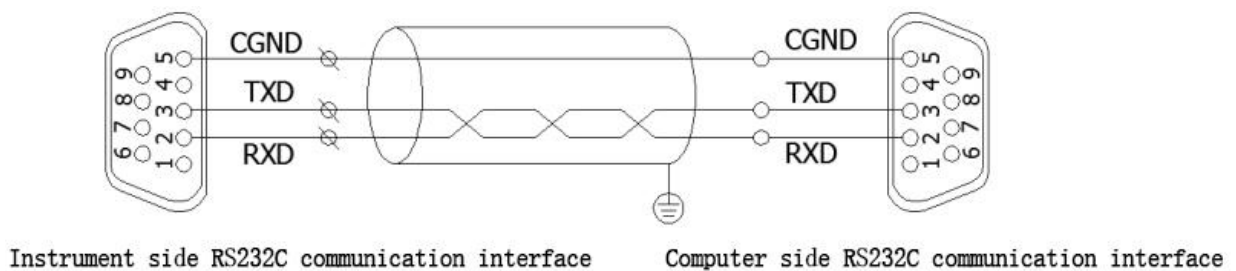
- RS-485 connection method

The communication cable should use shielded twisted pair (communication length not exceeding 1000 meters), with one end connected to the serial communication port of the computer through an RS-232/485 conversion module and the other end connected to the 485 communication terminal of the instrument. The connection method is shown in the following diagram.



- RS-232C connection method

Users only need to connect one end of the equipped RS-232C communication cable to the instrument RS-232C interface and the other end to the serial port of the portable computer (or PDA) to achieve RS-232C communication connection. The communication cable should be made of shielded twisted pair and the length of the communication cable should not exceed 10 meters.



5.7 Functional configuration

USB	
File F30_CFG.BIN	Ipot
File F30_CFG.BIN	Epot
☒	Exit

Functional configuration

■ Function configuration

- Configuration export: Backup the configuration to the root directory of the USB drive. The format and name of the exported file are fixed and cannot be changed. Only one configuration backup file can be stored in the same USB drive root directory. Please store the configuration backup files for each instrument with different parameters separately to avoid being overwritten by the newly exported configuration backup file.
- Configuration import: Automatically retrieve the corresponding

configuration backup files from the root directory of the USB drive after inserting it.

pay attention to

- ⊙ The configuration import and export function cannot be performed between different system software versions.
- ⊙ Do not tamper with the file format and content to cause file damage.

Configuration import is invalid when the file is damaged

5.8 Auxiliary interface

+	9999.999
RGE	0.001
	9999.999
OK	Back

+	19999.999
	-
RGE	0.001
	Overflow
OK	Back

Auxiliary interface

The auxiliary interface is mainly used for setting the upper and lower limits of the alarm/range. Entering the auxiliary interface can quickly adjust the multi digit numerical value. Once the set value exceeds the adjustable range, the system will prompt that it exceeds the parameter adjustable range. At this time, press the [direction key] to reset the parameters. Please refer to section 4.1-Instrument buttons for key operations.