

User Manual

Pressure transmitter

U-004P/013P/003P-EN6



Preface

Thank you for purchasing pressure transmitter. Please read this manual carefully before operating and using it correctly to avoid unnecessary losses caused by false operation.

Note

- Modification of this manual's contents will not be notified as a result of some factors, such as function upgrading.
- We try our best to guarantee that the manual content is accurate, if you find something wrong or incorrect, please contact us.
- This product is forbidden to use in explosion-proof occasions.

Version

U-004P/013P/003P-EN6

Disclaimer

- The company does not make any guarantees for the terms outside the scope of this product warranty.
- This company is not responsible for damage to the instrument or loss of parts or unpredictable damage caused directly or indirectly by improper operation of the user.

No.	Name	Quantity	Note
1	Pressure transmitter	1	
2	Manual	1	
3	Certificate	1	

After opening the box, please confirm the package contents before starting the operation. If you find that the model and quantity are incorrect or there is physical damage in appearance, please contact us.

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1 Introduction

Imported high precision and high stability pressure sensitive chips are selected for diffused silicon pressure transmitter. Sensitive chips are fabricated by advanced micro-mechanical etching process, which forms Wheatstone bridge by diffusing four high-precision resistors with temperature compensation on silicon wafers. Because of piezoresistive effect, there are some changes on the resistance values of the four bridge arm resistance, so as to make the bridge unbalanced, and then the sensor outputs an electric signal corresponding to the change of pressure. The output electric signal is compensated by amplification and non-linear correction circuit, which generates voltage and current signals which correspond linearly to the input pressure.

2 Characteristics

- (1) Compact structure and easy to install.
- (2) Advanced diaphragm/oil-filled isolation technology.
- (3) High stability and reliability.
- (4) Seismic resistance and anti-radio frequency interference.
- (5) 316L stainless steel isolation diaphragm structure.
- (6) High precision, all stainless steel structure.
- (7) Micro-amplifier, voltage and current signal output.
- (8) Strong anti-interference and long-term stability.
- (9) Variety of process connections are available.
- (10) Wide range of measurement. It can measure absolute pressure, gauge pressure and sealing reference pressure.
- (11) Anti-vibration and anti-impact.

3 Parameters

Table 1 Technical parameters

Measured variables	Gauge pressure, adiabatic pressure and sealed pressure
Measuring range	-100kPa~0...10kPa~60MPa
Analog output	P300, PX300, P300G, PX300G, P310: (4~20)mA output (without display), $R_L \leq (U-10V)/0.02A$; (4~20)mA output (with display), $R_L \leq (U-14V)/0.02A$; (0~5)V, (1~5)V, (0~10)V, $R_L \geq 5k\Omega$
	P400, PX400, P400G: (4~20)mA output (without display), $R_L \leq (U-9V)/0.02A$; (4~20)mA output (with display), $R_L \leq (U-13V)/0.02A$; (0~5)V, (1~5)V, (0~10)V, $R_L \geq 5k\Omega$
	Note: U is power supply voltage, unit: V
Communication output	RS485, Modbus communication protocol.
Power supply	P300, PX300, P300G, PX300G, P310: (4~20)mA output: (10~32)V (0~5)V, (1~5)V output: (8~32)V (0~10)V output: (12~32)V RS485 output (4-LCD): (17~32)V

3 Parameters

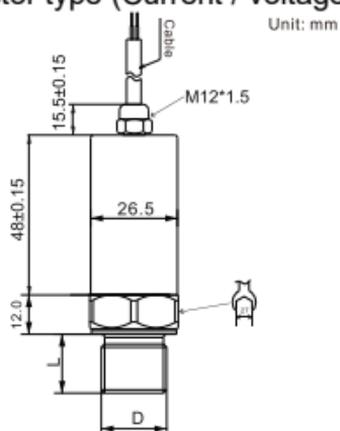
	P400, PX400, P400G: (4~20)mA output: (9~32)VDC (4~20)mA output with display: (8~32)VDC (0~5)V, (1~5)V,(0~10)V output: (12~32)VDC (4~20)mA + RS485 output: (12~32)VDC
Power consumption	Current output: $\leq 0.6W@24VDC$ Voltage output: $\leq 0.15W@24VDC$ RS485 output: $\leq 0.2W@24VDC$
Accuracy	0.2%FS / 0.25%FS / 0.5%FS
Stability	$\pm 0.2\%$ FS/year. Note: The pressure range below 35kPa shall be increased proportionally.
Response time	Current and Voltage output: $T_{90} \leq 110ms$ RS485 output: $T_{90} \leq 100ms$
Temperature drift	$10kPa \leq Range \leq 60kPa$: 2%FS (Within the temperature compensation range) $60kPa < Range \leq 60MPa$: 1.5%FS (Within the compensation temperature range)
Compensation temperature	$10kPa \leq Range < 25kPa$: (0~60) $^{\circ}C$ $25kPa \leq Range \leq 60kPa$: (0~70) $^{\circ}C$ $60kPa < Range \leq 60MPa$: (-10~70) $^{\circ}C$
Insulation	20M Ω , 250VDC
Insulation strength	50Hz, 500VAC
Ingress protection	Normal type: IP65 (Hirschmann connector, display part: IP50), Waterproof type: IP68
Overload pressure	(0.035~10)MPa: 150%FS

	(10~60)MPa: 125%FS
Medium temperature	(-20~85)°C
Working temperature	(-20~85)°C
Storage temperature	(-40~85)°C

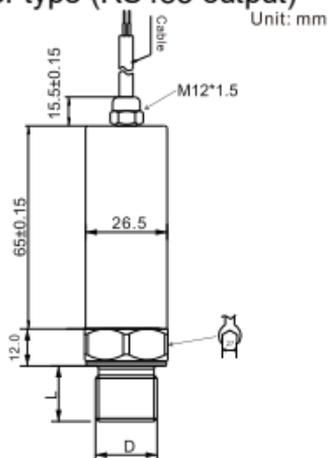
4 Dimensions

4.1 Dimensions of P300

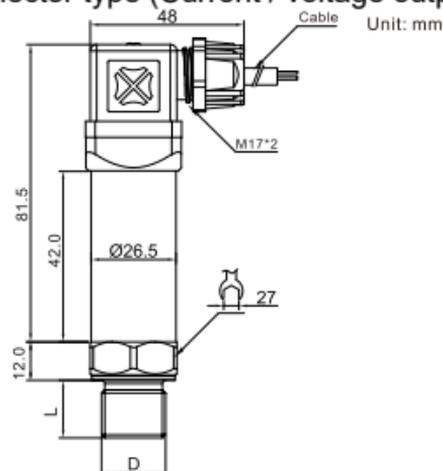
- Cable connector type (Current / voltage output)



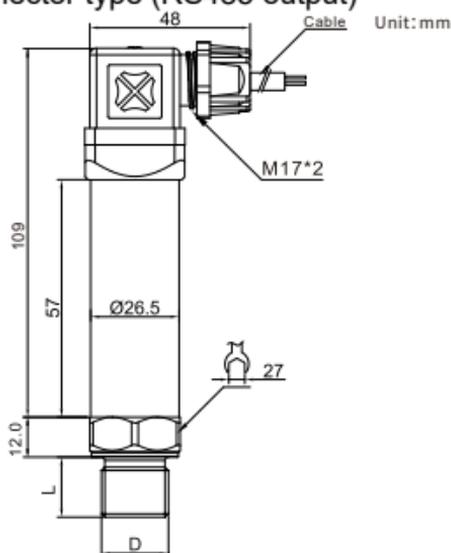
- Cable connector type (RS485 output)



- Hirschmann connector type (Current / voltage output)

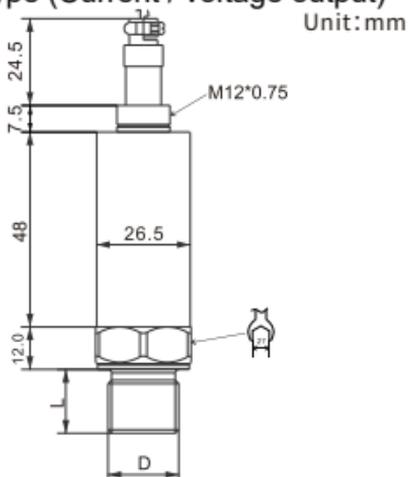


- Hirschmann connector type (RS485 output)

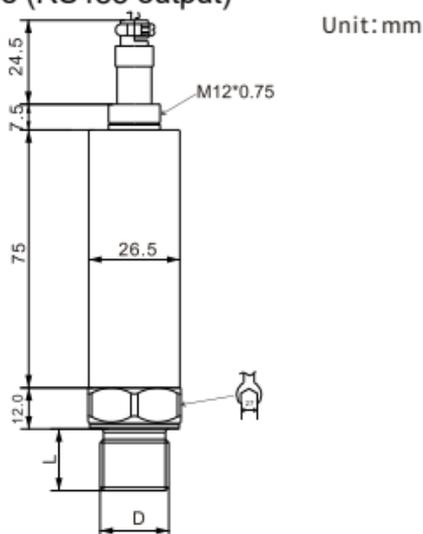


4 Dimensions

- M12 connector type (Current / voltage output)

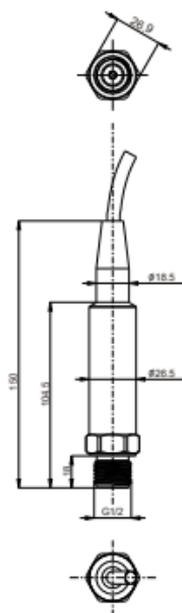


- M12 connector type (RS485 output)



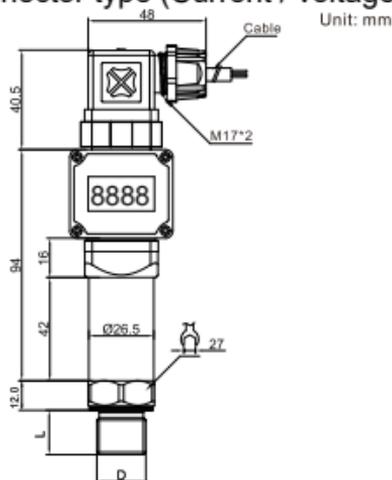
- Waterproof type

Unit: mm

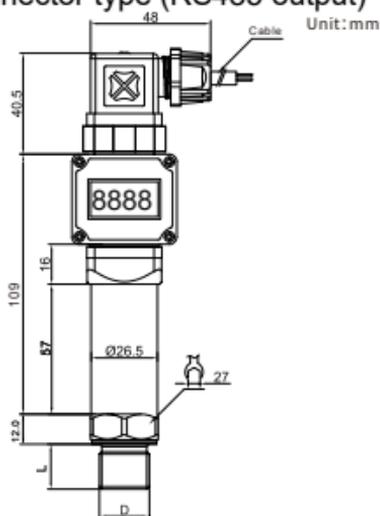


4.2 Dimensions of PX300

- Hirschmann connector type (Current / voltage output)

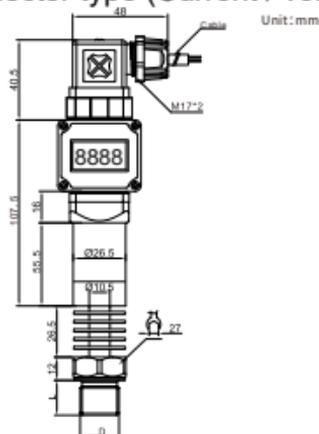


- Hirschmann connector type (RS485 output)

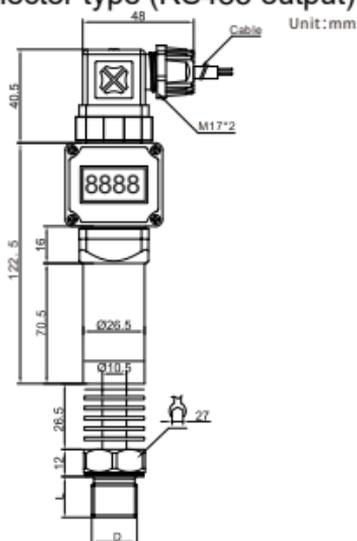


4.4 Dimensions of PX300G

- Hirschmann connector type (Current / voltage output,)

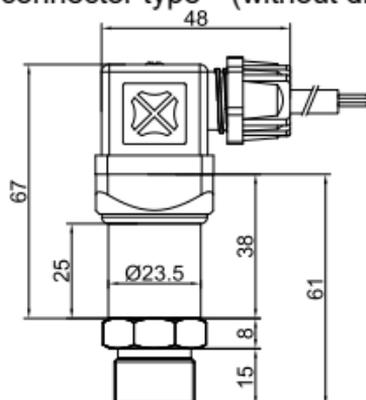


- Hirschmann connector type (RS485 output)

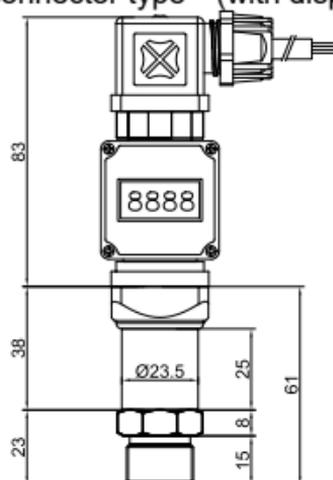


4.5 Dimensions of P310

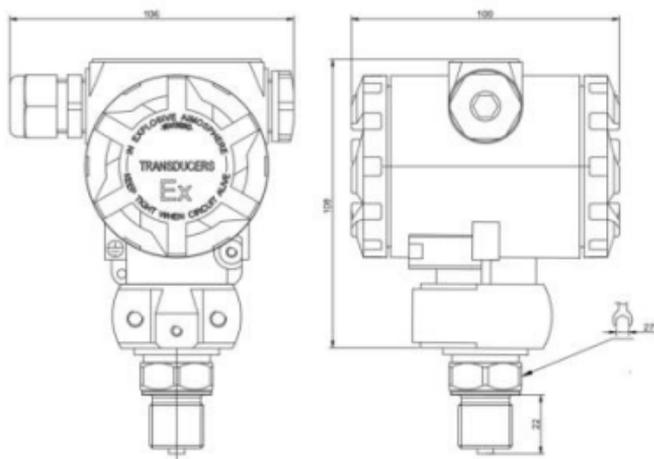
- Hirschmann connector type (without display)



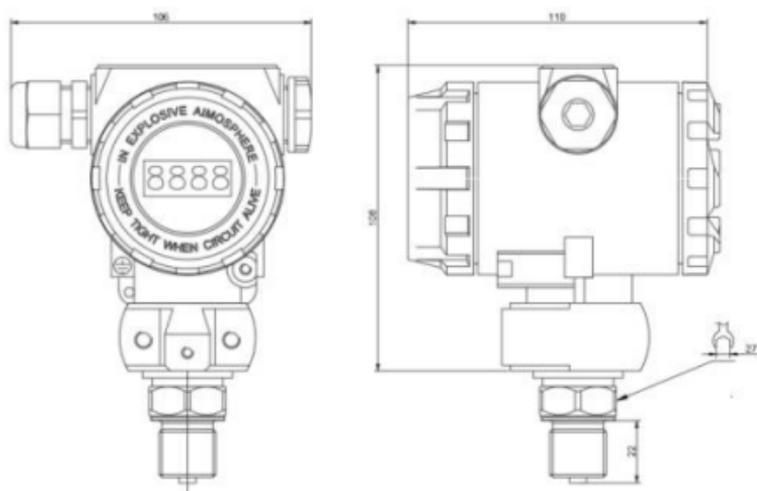
- Hirschmann connector type (with display)



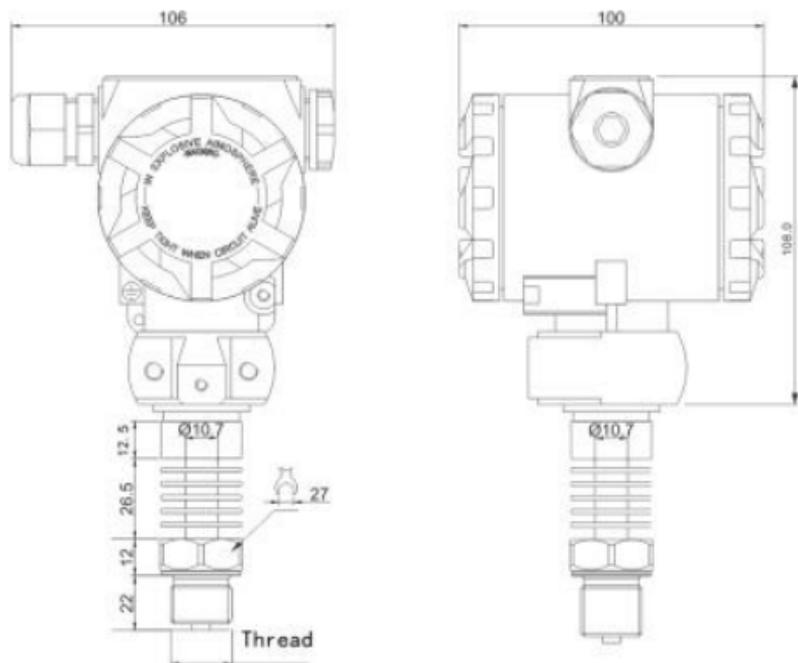
4.6 Dimensions of P400



4.7 Dimensions of PX400

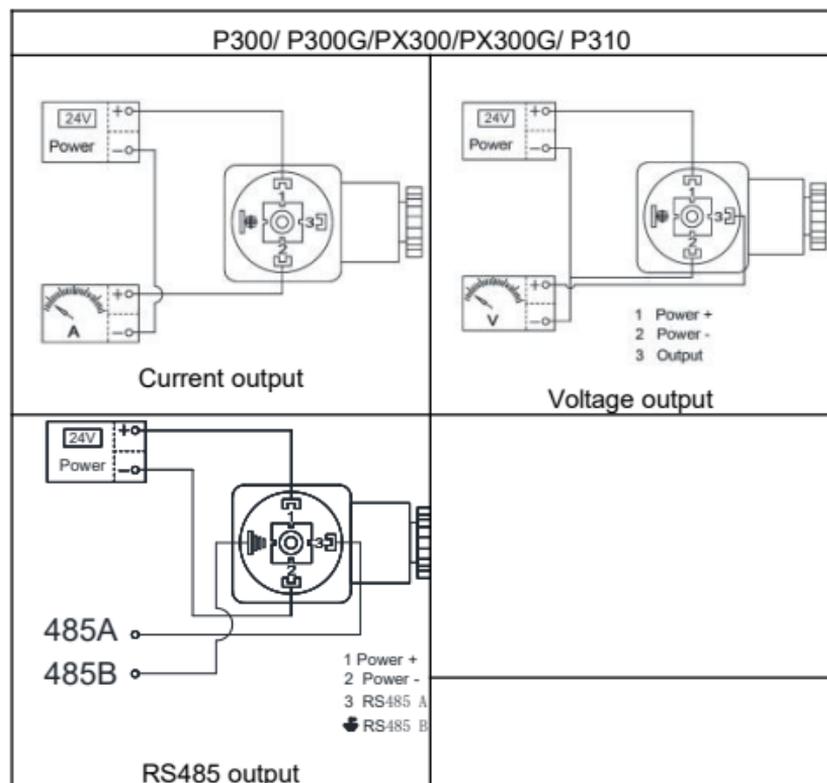


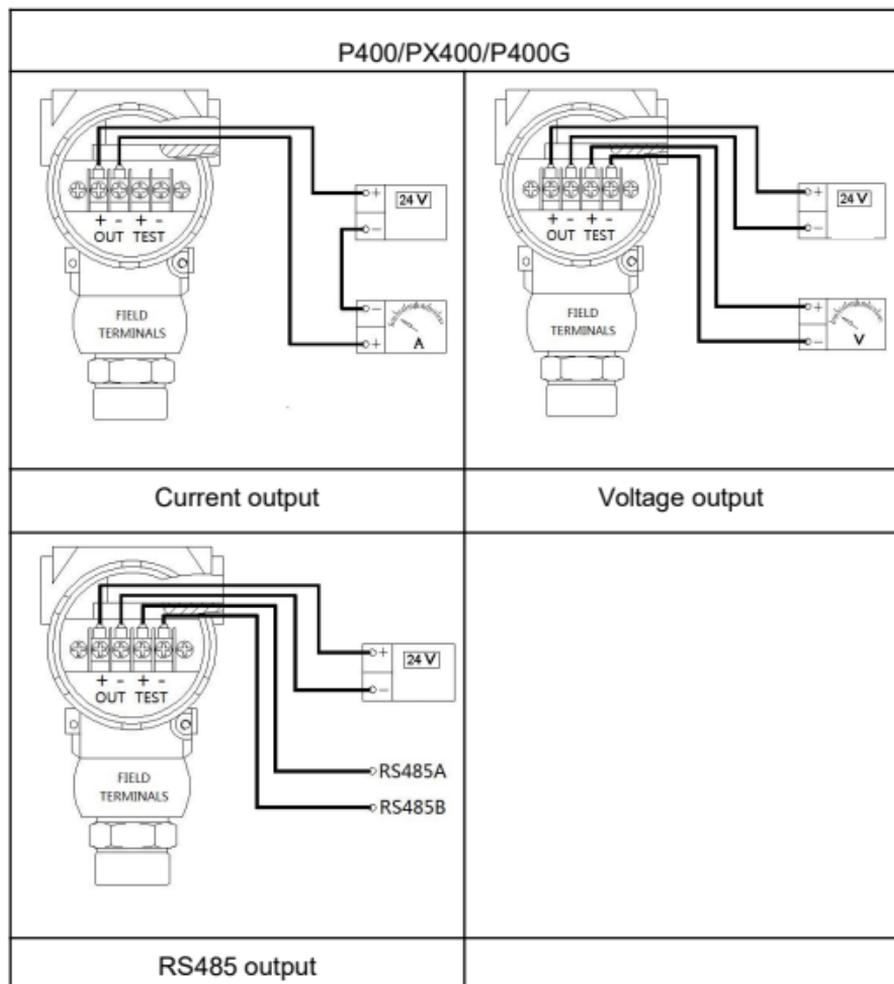
4.8 Dimensions of P400G



5 Wiring

5.1 Connector type





5.2 Cable type

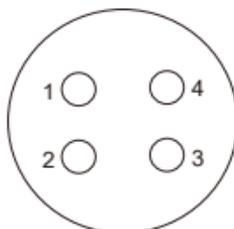
Wiring of normal cable connector type as follows:

Current:	Red Wire: 24V +
	Green Wire: Current Output
Voltage:	Red Wire: 24V +
	Green Wire: 24V -
	Yellow Wire: Voltage Output
RS485:	Red Wire: 24V +
	White Wire: 24V -
	Green Wire: RS485+
	Yellow Wire: RS485-

Wiring of waterproof cable connector type as follows:

Current:	Red Wire: 24V +
	Blue Wire: Current Output
Voltage:	Red Wire: 24V +
	Blue Wire: 24V -
	Yellow Wire: Voltage Output
RS485:	Red Wire: 24V +
	Black Wire: 24V -
	Blue Wire: RS485+
	Yellow Wire: RS485-

5.3 M12 connector type



Wiring of normal cable connector type as follows:

Current output:	1: 24V + 3: Current Output
Voltage output:	1: 24V + 2: 24V - 3: Voltage Output
RS485 output:	1: 24V + 2: GND 3: RS485 A 4: RS485 B

6 Function & Setting (P400)

6.1 Display

The main display area and the sub-display area of the screen have a variety of display functions. There are three kinds of display on the main screen, namely pressure value display, percentage display and current display. The sub-display has two different options: temperature display and no display. The temperature value comes from the temperature sensor on the circuit board, and the display switch can be carried out at any time. The way each click is displayed depends on the mode value that the software saved at the end. The display mode set on the panel will be cleared after the next power failure.



6.2 Definition



"M"

Press "on" to enter the password setting in the measurement mode.

Press and hold for 5 seconds in the measurement mode to enter the principal variable reset (i.e., PV reset).

(3) In the setting mode, press the keys for a second to enable parameter modification, and the modified parameter flashes. Press the keys again to confirm parameter modification, and the modified parameter stops flickering.

"S"

(1) Press shortly in the measurement mode to modify the display mode.

(2) Press and hold in the measurement mode for 5 seconds to enter the filling function (the calibration transmitter is full, which will involve the accuracy and performance. Do not operate in the case of no standard source).

(3) In setting mode, add one function for setting parameters, and long time continuous shift plus one.

"Z"

Press shortly in the measurement mode to modify the display mode.

Press and hold for 5 seconds in the measurement mode to enter the zero function (to calibrate the transmitter zero point).

In the setting mode, for setting parameter displacement and reduce function, to shift or subtract one continuously in a long time.

6.3 Monitoring menu

There are two types of access codes, depending on the size of

the transmitter.

(1) 4~20mA output

① Normal User Menu

The entry password is "00001", and the display unit, display resolution and display mode can be set.

② Advanced User Menu

The entry password is "00016". It is used when special settings are made for the on-site use requirements of the transmitter.

(2) RS485 output / RS485+4~20mA output

Single RS485 output or simultaneous RS485&(4-20) mA output, the instrument menu is divided into three levels: "Communication Settings", "Normal Users", and "Advanced Users", distinguished by the entry password of each level menu.

① Normal User Menu

The entry password is "00001" and can be used to set the display unit, user decimal point, main screen display mode, and fixed current output.

② Communication Settings Menu

The password for entering the communication settings menu is "00002", and you can set the address, baud rate, and checksum.

③ Advanced User Menu

The password for entering the advanced user menu is "00016", which allows for zero to full shielding coefficient, filtering coefficient, transmitter range lower limit, transmitter range upper limit, zero current fine adjustment, full point current fine adjustment, current limit enable, low limit value, high limit value, display offset, sensor sensitivity, and factory reset.

④ Restore factory settings

Enter the password as "10000" and click the "Function Key M" to restore the instrument to its factory default state.

6.4 Function setting (4~20mA output)

Table 2

Normal user menu, the entry password is "00001".

Symbol	Meaning	Setting Explanation
LOC	Password input menu,	Settable range: 19999 ~ 99999, menu prompt "PIN". Set the password to enter the menu. If you enter the password incorrectly or there is no keys operation within 30 seconds, you will automatically return to the measurement mode.
UNT	Unit Setting	Settable range: 0 ~ 18, The menu prompt is set for each unit: "MPa", "kPa", "Pa", "bar", "mbar", "psi", "mH ₂ O", "mmH ₂ O", "inH ₂ O", "ftH ₂ O", "mHg", "mmHg", "inHg", "kgf/cm ² ", "atm", "Torr", "m", "cm", "mm"
DOT	Display precision setting,	Settable range: 0 ~ 4, menu prompt is the current pressure unit The display resolution is the decimal digits of decimal places displayed in the

Symbol	Meaning	Setting Explanation
		<p>measurement mode. Users can set it according to the requirements of field use. It is not better to display more decimal places, and the stability of the display value should be given priority. At the same time, this menu value will be limited by the maximum transmitter display value during calibration. If the set number of decimal points is out of the 5-bit display range when the maximum display value of the transmitter is displayed, the set number of decimal points will be limited to the range where the maximum display value can be displayed normally.</p> <p>For example: the calibration range of transmitter is 0.0000 ~ 20.000MPa; then the setting range of display precision is (0 ~ 3). If the setting value of display precision is 4, the maximum display</p>

Symbol	Meaning	Setting Explanation
		value will exceed the maximum display range of 5 bits.
SHO	Display mode setting,	<p>Settable range: 0 ~ 5</p> <p>"0" -- shows the main variable at the prompt "-pv -"</p> <p>"1" -- shows current, prompt "-ma -"</p> <p>"2" -- shows percentages, prompt "-%-"</p> <p>"3" -- the main variable is displayed alternately with the current, and the prompt is "pv-ma".</p> <p>"4" -- the main variable is displayed alternately with the percentage, and the prompt is "PV-%".</p> <p>"5" -- current and percentage are shown alternately, prompt "mA--%"</p>
END	Exit the setting menu	<p>Settable range: 0 ~ 1</p> <p>"0" - do not save the set value, and exit the set state, prompt "NSAVE"</p> <p>"1" - SAVE the set value and exit the set state, prompt "SAVE"</p>

Table 3

Advanced user menu, the entry password is "00016".

Symbol	Meaning	Setting Explanation
FIL	Filtering coefficient setting	<p>Range: 0~2</p> <p>0 "- Low filtering, prompt" LOW "</p> <p>1 "- Middle filtering, prompt" Mld "</p> <p>2 "- High filtering, prompt" Hlg "</p> <p>The larger the setting of the filtering constant value, the stronger the ability to suppress interference, but the sensitivity will decrease. During production calibration, the default value in this menu is "1" for moderate filtering effect, which can adapt to most application scenarios.</p>
bSL	Lower limit of the transmission range setting	<p>Settable range:-19999 ~ 99999, and the menu prompt displays the current pressure unit.</p> <p>This function can achieve passive zero point migration of the transmission</p>

Symbol	Meaning	Setting Explanation
		<p>output, and its set pressure value will correspond to the current value set in the "SOL" zero point current menu. For user convenience, the decimal point position in this menu can be set by pressing the button, so that users can quickly set the desired value.</p> <p>The minimum range of the transmitter can be compressed according to 3:1 of the sensor range, and the maximum range can be set according to 1:1 of the sensor range. Exceeding this range will affect the accuracy of the transmission output.</p>
bSH	Higher limit of the transmission range setting	<p>Settable range:-19999 ~ 99999, and the menu prompt displays the current pressure unit.</p> <p>This function can achieve passive full</p>

Symbol	Meaning	Setting Explanation
		<p>point migration of the transmission output, and its set pressure value will correspond to the current value set in the "SOH" full point current menu. For user convenience, the decimal point position in this menu can be set by pressing the button, so that users can quickly set the desired value.</p> <p>The minimum range of the transmitter can be compressed according to 3:1 of the sensor range, and the maximum range can be set according to 1:1 of the sensor range. Exceeding this range will affect the accuracy of the transmission output.</p>
SoL	Zero point current fine-tuning	<p>Settable range: -150~200。</p> <p>When setting this menu, the instrument will alternately display the factory set zero current value and the</p>

Symbol	Meaning	Setting Explanation
		zero current D/A fine adjustment value, while the transmitter outputs the set current value. When the set zero output current value is displayed, the menu prompt shows "L-OUT", and when the zero current D/A fine adjustment value is displayed, the menu prompt shows "L-D/A." If there is an error in the zero current value output by the transmitter during use, an ammeter can be connected in series in the transmitter power circuit to fine adjust the zero current value through "S" and "Z". The current fine adjustment range is about $\pm 0.2\text{mA}$.
SoH	Full point current fine-tuning.	Settable range: $-150\sim 200$ 。 When setting this menu, the instrument will alternately display the

Symbol	Meaning	Setting Explanation
		factory set full point current value and the full point current D/A fine adjustment value, while the transmitter outputs the set current value. When the set full point output current value is displayed, the menu prompt shows "H-OUT", and when the full point current D/A fine adjustment value is displayed, the menu prompt shows "H-D/A." If there is an error in the output full point current value of the transmitter during use, an ammeter can be connected in series in the transmitter power circuit, and the full point current value can be fine adjusted through "S" and "Z". The current fine adjustment range is about $\pm 0.2\text{mA}$.
Zr0	Zero and full	Settable range: 0.00 ~ 1.00, Menu

Symbol	Meaning	Setting Explanation
	shielding coefficient	<p>prompt '%'. This menu setting indicates the shielding range for zero and full points. For example, when the menu value is set to 0.10, it means that when the transmitter output approaches 0.10% of the transmission range by adding or subtracting from zero or full point, the transmitter output will automatically stabilize at zero or full point without any output jumping due to interference.</p>
dAL	Over range alarm switch	<p>Over range alarm switch. This setting indicates that when the pressure value exceeds 125% of the sensor range upper limit or falls below 25% of the range lower limit, a flashing prompt will be displayed.</p>

Symbol	Meaning	Setting Explanation
		<p>0 "- Turn off the alarm function, prompt" NO "</p> <p>1 "- Turn on the alarm function, prompt" YES "</p>
oFS	Display offset values.	<p>Settable range: -19999~99999</p> <p>The menu prompt displays the current pressure unit. By setting this menu value, the transmitter display and output value can be offset. The default value of this menu is 0 at the factory, and generally there is no need to set this menu value.</p>
COE	Sensor sensitivity correction coefficient	<p>Settable range: 0.0001~1.9999 with the menu prompt "GAIN".</p> <p>During the use of the transmitter, if the sensitivity of the sensor changes, it can be corrected through this menu. Before performing sensitivity correction on the transmitter, the zero</p>

Symbol	Meaning	Setting Explanation
		<p>point error of the transmitter should be corrected through the main variable zeroing (PV zeroing) function to ensure that the linearity transmitted after sensitivity correction is normal. The default value of this menu is "1.0000".</p> <p>For example, if the calibration range of the transmitter is 0.0000~20.000MPa, and the zero point changes to "0.0050MPa" and the full point changes to "20.160MPa" after using the transmitter for a period of time, both the zero point and sensitivity of the transmitter have changed. When correcting it, the main variable zeroing function should be used to clear the error of its zero point. After the main</p>

Symbol	Meaning	Setting Explanation
		<p>variable is zeroed, the zero point of the transmitter is "0.0000MPa" and the full point is "20.110MPa". Then, the theoretical full point is divided by the actual full point value to correct its sensitivity, that is, $20.000\text{MPa}/20.110\text{MPa}=0.9945$. The sensitivity correction factor of the sensor is modified to "0.9945" to correct the sensitivity change.</p>
rSt	Restore calibration data	<p>This menu function is to restore the data of the transmitter to its factory state. This function is only valid when exiting the settings and saving the data.</p> <p>'0' - Disable the factory recovery function, prompt 'NO'</p> <p>1 "- Open the factory recovery function, prompt" YES "</p>

6.5 Function setting (RS485 output / RS485+4~20mA output)

LOC: Password input menu, Settable range: 19999 ~ 99999, menu prompt "PIN". Set the password to enter the menu. If you enter the password incorrectly or there is no keys operation within 30 seconds, you will automatically return to the measurement mode.

(1) Normal user menu, password is "00001":

Table 4

Symbol	Meaning	Setting Explanation
UNT	Unit Setting	Settable range: 0~23, The menu prompt is set for each unit:
		0-"MPa" 1-"kPa"
		2-"Pa" 3-"bar"
		4-"mbar" 5-"PSI"
		6-"mH ₂ O" 7-mmH ₂ O"
		8-inH ₂ O" 9-"ftH ₂ O"
		10-mHg" 11-"mmHg"
		12-inHg" 13-"kg/cm ² "
		14-ATM" 15-"Torr"

Symbol	Meaning	Setting Explanation
		16-"m" 17-"cm" 18-"mm" 19-"kg" 20-"°C" 21-"pH" 22-"°F" 23-"none"
UDP	Decimal Places Setting	Settable range: 0~5. 5 is automatic decimal points, and the instrument will automatically set the decimal point according to the data range.
SHO	Display mode setting,	Settable range: 0~2,.Default is 1, display pressure value. 0-"Current value" 1-"Pressure value" 2-"Percentage"
OUT	Fixed current output	Customer on-site debugging output fixed current, can output 3.800mA, 4.0000mA, 8.000mA, 12.000mA, 16.000mA, 20.000mA at a time.
END	End the save	Short press under this menu to

Symbol	Meaning	Setting Explanation
	menu	confirm and save the data, and exit the measurement mode.

(2) Communication settings menu, password is "00002"

Table 5

Symbol	Meaning	Setting Explanation
ADR	Transmitter address setting	1~255, The default is 1.
BOT	Baud rate setting	Baud rate range:1200,2400,4800, 9600,19200,38400,57600,115200 bps. (Note: The screen displays up to 5 digits, and 115200 is displayed as 11520.)
ECK	Parity Setting	N: none, O: odd, E: even The default is N.
END	End the save menu	Short press under this menu to confirm and save the data, and exit the measurement mode.

(3) Advanced user menu, password is "00016"

Table 6

Symbol	Meaning	Setting Explanation
ZRO	Zero to full shielding factor.	0.001 represents 0.1%.
FIL	Filtering coefficient	The filtering coefficient ranges from 0 ~ 100. The larger the value, the more stable it is, but the slower the response. The response speed of the transmitter is determined by the ADC acquisition rate and filtering coefficient together.
IUL	Lower limit of the transmission range setting	Settable range:-19999 ~ 99999, and the menu prompt displays the current pressure unit. This function can achieve passive zero point migration of the transmission output, and its set pressure value will correspond to

Symbol	Meaning	Setting Explanation
		<p>the current value set in the "SOL" zero point current menu. For user convenience, the decimal point position in this menu can be set by pressing the button, so that users can quickly set the desired value.</p> <p>The minimum range of the transmitter can be compressed according to 3:1 of the sensor range, and the maximum range can be set according to 1:1 of the sensor range. Exceeding this range will affect the accuracy of the transmission output.</p>
IUH	Upper limit of the transmission range setting	<p>Settable range:-19999 ~ 99999, and the menu prompt displays the current pressure unit.</p> <p>This function can achieve passive</p>

Symbol	Meaning	Setting Explanation
		<p>full point migration of the transmission output, and its set pressure value will correspond to the current value set in the "SOH" full point current menu. For user convenience, the decimal point position in this menu can be set by pressing the button, so that users can quickly set the desired value.</p> <p>The minimum range of the transmitter can be compressed according to 3:1 of the sensor range, and the maximum range can be set according to 1:1 of the sensor range. Exceeding this range will affect the accuracy of the transmission output.</p>
SOL	Zero point current	<p>Settable range:-1000 ~ 1000.</p> <p>If there is an error in the output</p>

Symbol	Meaning	Setting Explanation
	fine-tuning	zero current value during the use of the transmitter, an ammeter can be connected in series in the transmitter power circuit, and the zero current value can be fine tuned through "S" and "Z". The current fine tuning range is about $\pm 0.35\text{mA}$.
SOH	Full point current fine-tuning.	Settable range: -1000 ~ 1000. If there is an error in the output full point current value during the use of the transmitter, an ammeter can be connected in series in the transmitter power circuit, and the full point current value can be fine tuned through "S" and "Z". The current fine tuning range is about $\pm 0.35\text{mA}$.

Symbol	Meaning	Setting Explanation
CLE	Current limiting enable control	The output limiting function can be turned on and off. For example, if the maximum output is 20mA, then if the pressure value exceeds 20mA, the transmitter still display 20mA.
CLL	Limit value low value	It is directly the current value.
CLH	Limit value high value	It is directly the current value.
OFT	Display offset values.	Settable range: -19999 ~ 99999, with the menu prompt displays the current pressure unit. By setting this menu value, the transmitter display and output values can be offset. The default value for this menu is 0 at the factory, and it is generally not necessary to set this menu value.

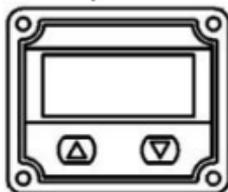
Symbol	Meaning	Setting Explanation
COE	Sensor sensitivity correction coefficient	<p>Settable range: 0.0001 ~ 1.9999, with the menu prompt "GAIN".</p> <p>During the use of the transmitter, if the sensitivity of the sensor changes, it can be corrected through this menu. Before performing sensitivity correction on the transmitter, the zero point error of the transmitter should be corrected through the main variable zeroing (PV zeroing) function to ensure that the linearity transmitted after sensitivity correction is normal. The default value of this menu is "1.0000".</p> <p>For example, if the calibration range of the transmitter is 0.0000~20.000MPa, and the zero</p>

Symbol	Meaning	Setting Explanation
		<p>point changes to "0.0050MPa" and the full point changes to "20.160MPa" after using the transmitter for a period of time, both the zero point and sensitivity of the transmitter have changed. When correcting it, the main variable zeroing function should be used to clear the error of its zero point. After the main variable is zeroed, the zero point of the transmitter is "0.0000MPa" and the full point is "20.110MPa". Then, the theoretical full point is divided by the actual full point value to correct its sensitivity, that is, $20.000\text{MPa}/20.110\text{MPa}=0.9945$.</p> <p>The sensitivity correction factor of the sensor is modified to "0.9945"</p>

Symbol	Meaning	Setting Explanation
		to correct the sensitivity change.
RST	Restore calibration data	Restore factory calibration data
END	End the save menu	Short press under this menu to confirm and save the data, and exit the measurement mode.

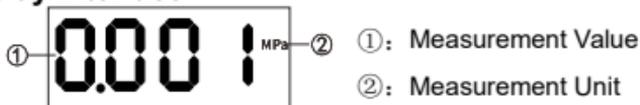
7 Function & Setting (P300/P310)

The digital pressure transmitter features a four-digit LCD display or a four-digit 8-segment LED display. It is configured and adjusted via keys on the panel.



7.1 Analog Signal Output with Four-Digit LCD Display

7.1.1 Display Interface



7.1.2 Accessing the Menu

Press both the **【▲】** and **【▼】** keys simultaneously to enter the password input state "Lock". Press the **【▲】** or **【▼】** keys to move the cursor or change the value at the cursor, respectively.

Enter the password "0001" to access the settings menu.

Press the **【▲】** or **【▼】** keys briefly to scroll through the menu items. To modify a specific menu item, press both **【▲】** and **【▼】** keys simultaneously to enter the modification mode.

Once the modifications are completed, press both keys simultaneously again to return to the menu state.

7.1.3 Configuration Settings

Table 7

Symbol	Meaning	Setting Explanation
DS-L	Zero Display Value	Sets the zero position display for pressure
DS-H	Full Scale Display Value	Sets the full scale display for pressure
DP	Decimal Point Selection	Sets the decimal point position; symbol only, no dynamic range conversion. For example, factory settings DS-L = 0000, DS-H = 1000, if decimal point is set to 0.1, full scale display will show 100.0. If no other parameters are changed, only the decimal point setting changed to 0, the full scale will display as 1000.
UNIT	Unit Selection	Provides seven common units "MPa, kPa, bar, psi, M, Pa, °C, blank", symbol only, no dynamic range conversion.

Symbol	Meaning	Setting Explanation
LINE	Non-linear Correction	Inverse value of the midpoint error in current, input by user. Reference standard is the meter display value.
FILT	Filter Coefficient	Prevents display fluctuations due to current variations. Selectable from 0 to 9, higher coefficients yield more stable display but slower data changes.
ZER	Zero Suppression	Removes insignificant small signals, settable from 0.0% to 2.0% of the range.

7.2 RS485 Output with Four-Digit 8-Segment LED Display

7.2.1 Main Interface



7.2.2 Accessing the Menu

Press and hold both the **【▲】** and **【▼】** keys for 5 seconds to enter the password input mode. Use the **【▲】** key to move the cursor and the **【▼】** key to change the value at the cursor position. Enter the password "0016" to access the user settings menu.

Press the **【▲】** or **【▼】** keys briefly to scroll through the menu items. To modify a particular menu item, press both **【▲】** and **【▼】** keys simultaneously to enter the modification mode.

Once modifications are completed, press both keys simultaneously again to return to the menu state.

7.2.3 Configuration Settings

Table 8

Symbol	Meaning	Setting Explanation
ADDR	Address Setting	Range (1~247), adjust using the 【▲】 or 【▼】 keys.
BAUD	Baud Rate Setting	Range (1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps). The last two zeros are not displayed, e.g., 12 represents 1200 bps, 1152 represents 115200 bps. Adjust using the 【▲】 or 【▼】 keys.
PAR	Parity Setting	Options (N: none, O: odd, E: even). Adjust using the 【▲】 or 【▼】 keys.
SPD	ADC Speed	Unit Hz, 10 represents 10Hz (slow conversion rate, stable data), 40

Symbol	Meaning	Setting Explanation
		represents 40Hz (faster conversion rate, but less stable than at 10Hz). Adjust using the 【▲】 or 【▼】 keys.
UNIT	Unit Setting	Range (0: Pa, 1: KPa, 2: MPa, 3: mmH ₂ O, 4: mH ₂ O, 5 : bar, 6: psi, 7: atm, 8: kgf/cm ² , 9: mm, 10: m, 11: °C, 12: °F). Adjust using the 【▲】 or 【▼】 keys.
DOT	Decimal Places Setting	Range (0~3). Adjust using the 【▲】 or 【▼】 keys.
OFT	Offset Value Setting	Set by UNIT. Move cursor with 【▲】 , change value with 【▼】 .
SAVE	Exit	Save settings with YES, do not save with NO, exit settings mode by simultaneously pressing 【▲】 【▼】 Note: If no button is pressed for 60 seconds, the device automatically exits user settings.

7.2.4 Zeroing Operation

Press and hold the **【▲】** and **【▼】** keys simultaneously for 5 seconds to enter the password input mode. Use the **【▲】** key to move the cursor and the **【▼】** key to change the value at the cursor. Enter the password "0036" to initiate the zeroing state. Press the **【▲】** and **【▼】** keys to select "YES" (confirm zeroing), "NO" (do not zero), or "RST" (cancel zeroing). Press both keys simultaneously to exit.

Note: If no button is pressed for 60 seconds, the device automatically exits zeroing mode.

7.2.5 Factory Reset

Press and hold the **【▲】** and **【▼】** keys simultaneously for 5 seconds to enter the password input mode. Use the **【▲】** key to move the cursor and the **【▼】** key to change the value at the cursor. Enter the password "9876" and then press both **【▲】** and **【▼】** keys simultaneously to perform the factory reset.

Note: If no button is pressed for 60 seconds, the device automatically exits.

8 Installation

- (1) Pressure transmitter should be installed as far as possible in the place where temperature fluctuation is small, while avoiding vibration and shock.
- (2) The pressure transmitter can be directly installed at the measuring point. Connection threads: M20*1.5 or 1/2-NPT. Flange Interfaces of various specifications for special purposes.
- (3) Transmitter is suitable for measuring the pressure of various general corrosive liquids and gas. Transmitters manufactured according to explosion-proof requirements can be used in different explosive environments according to the explosion-proof grade of products, and their related equipment should also have explosion-proof function. For strong corrosive medium (such as acid, alkali) and corrosion resistant structure, the orders should be placed according to special requirements.
- (4) Do not route the signal line through the conduit or the open cable with the power line, or near high-power equipment.
- (5) If the pressure pipes are used in the transmitter, attention should be paid to that the strong corrosive or superheated media should not contact the transmitter, so as to prevent the sediment from precipitating in the pressure pipes, and the pressure pipes should be as

short as possible. When measuring steam or other high temperature medium, the working temperature of the transmitter should not exceed the limit. When used for steam measurement, the pressure pipes should be filled with water to prevent the transmitter from contacting directly with the steam.

9 Safety instructions

- (1) The cap must be tightened by hand, and the connection hole must be sealed with suitable seals to prevent water accumulation in the shell.
- (2) The transmitter shall not be loosened at the sealing joint and must be kept reliable.
- (3) Transmitters must be used according to specifications, and different types cannot be interchanged.
- (4) Transmitter range can be reduced, but the upper limit of range must not be exceeded 1.5 times of the range.

10 Cautions

- (1) The transmitter is used in a medium without corrosion to silicon and stainless steel (or aluminium alloy).
- (2) The maximum pressure of the measured system may not exceed the rated value of 150% FS at the moment of instantaneous occurrence.
- (3) The back end of the pressure transmitter should not be in contact with conductive, corrosive liquids or gases.
- (4) It is not possible to insert a sharp object into the pressure input hole in order to prevent damage to the core.
- (5) The water can not enter the back-end lead of the sensor.
- (6) When using, please strictly follow the precautions, otherwise the consequences are at your own risk.