User's Manual Supmea

Pressure transmitter

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U-SUP-P350-EN1

Preface

- Thank you for purchasing our products.
- Read the instructions in this manual about the functions, wiring methods, setting methods, operation methods, fault handling methods, etc.
- Before the specific operation, please read this manual carefully and use this product correctly to prevent unnecessary losses caused by misoperation.
- After you finish reading this instruction manual, please keep it in a place that is easy to read at any time for reference during 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-SUP-P350-EN1

Disclaimer

Please confirm the product and information after unpacking. Please contact us if the product is wrong, or the quantity is incorrect or the appearance is damaged.

Package contents

S/N	Item Name	Qty
1	Pressure transmitter	1
2	Manual	1
3	Certificate	1

Note

- When the backlight is not required, please turn off the backlight to extend the battery life.
- If the product is not used for a long time, please remove the battery.
- If you need to calibrate the product, please contact us.Do not disassemble the product privately

Contents

Chapter 1 Introduction

The pressure transmitter with flat membrane structure feels the pressure directly through the corrugated film. At the same time, the use of sensor flat diaphragm to prevent dirt, unsanitary and viscous liquid clogging and other problems. The structure has the characteristics of small size, light weight and good long-term stability, and is widely used in food, medicine, health and wine industry.

Chapter 2 Main Features

- The utility model has the advantages of compact structure and convenient installation.
- Advanced diaphragm / oil-filled isolation technology.
- High stability and high reliability.
- Anti-shock, anti-radio frequency interference.
- The structure of 316L stainless steel isolation diaphragm.
- High precision, all stainless steel structure.
- Miniature amplifier, voltage, current, RS485 signal output.
- The utility model has strong anti-interference and good long-term stability.
- The utility model has a variety of forms and structures, and is easy to install and use.
- It has a wide measuring range and can measure absolute pressure, gauge pressure and sealing reference pressure.
- Anti-vibration, anti-impact.

Chapter 3 Dimensions and Installation

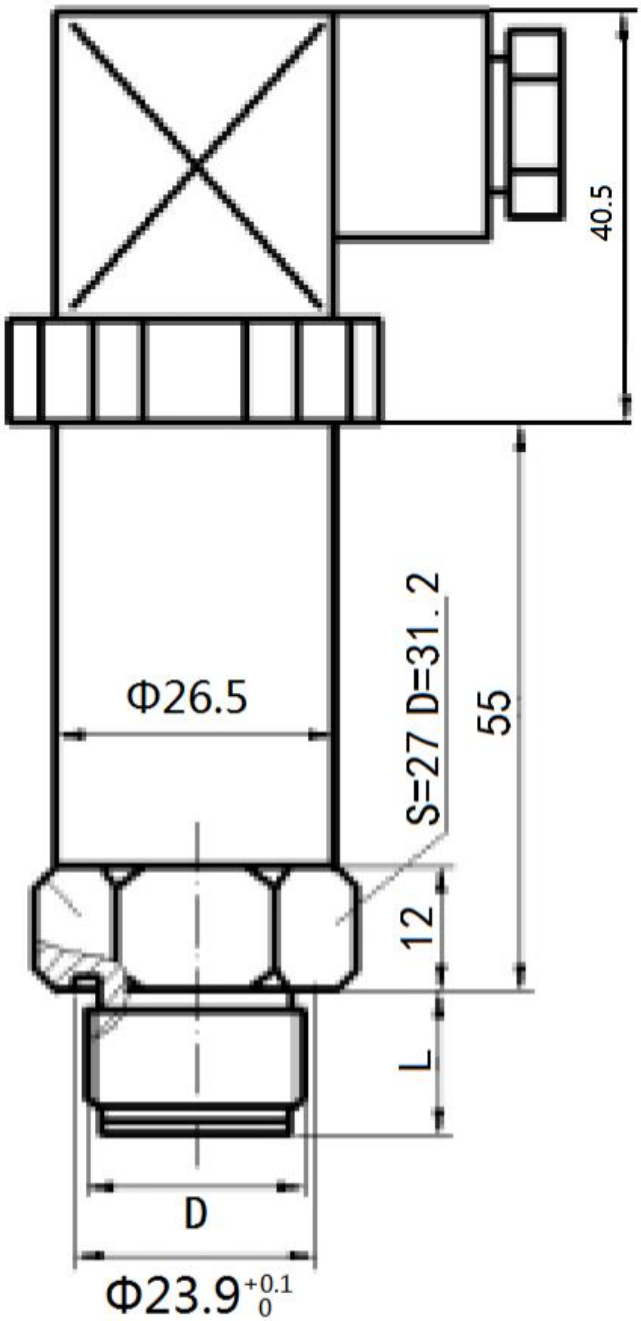

Fig. 1 Flat film with DIN connector

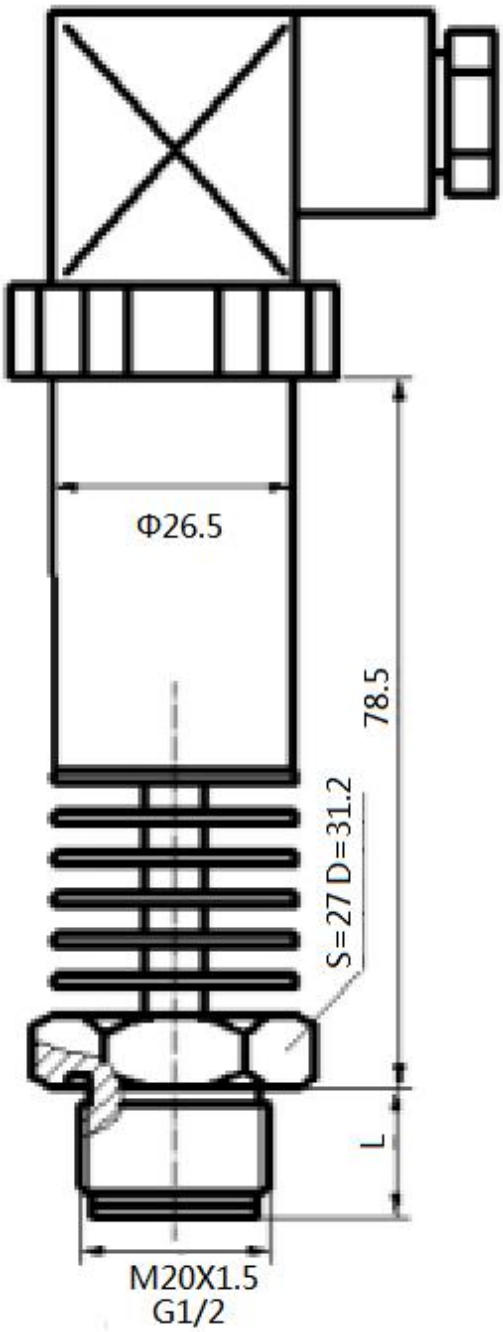

Fig. 2 High temperature DIN connector

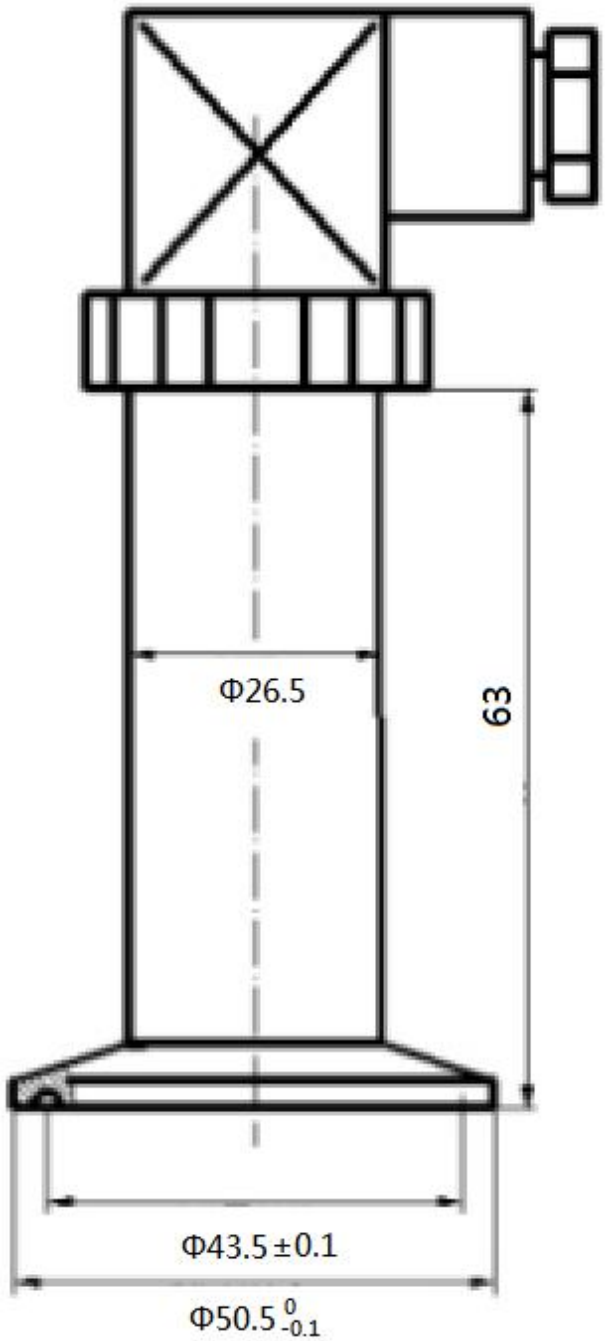

Fig. 3 DIN connector
clamp flat film

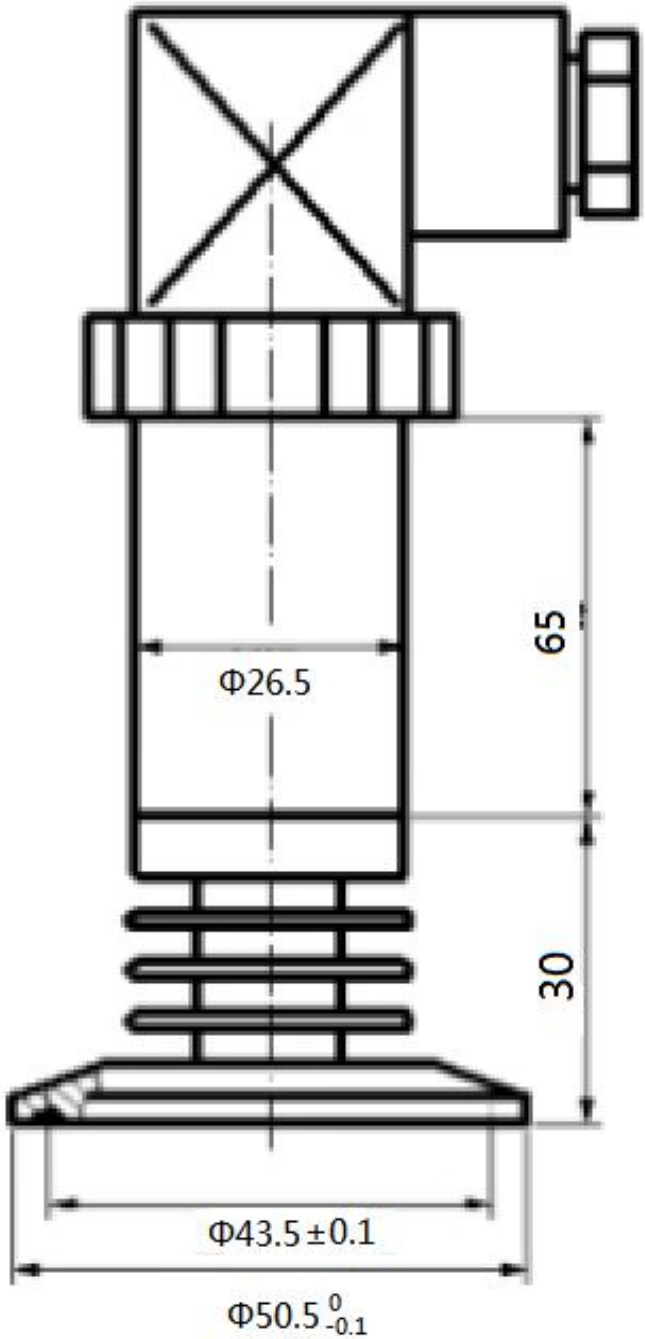

Fig. 4 High temperature DIN connector clamp flat

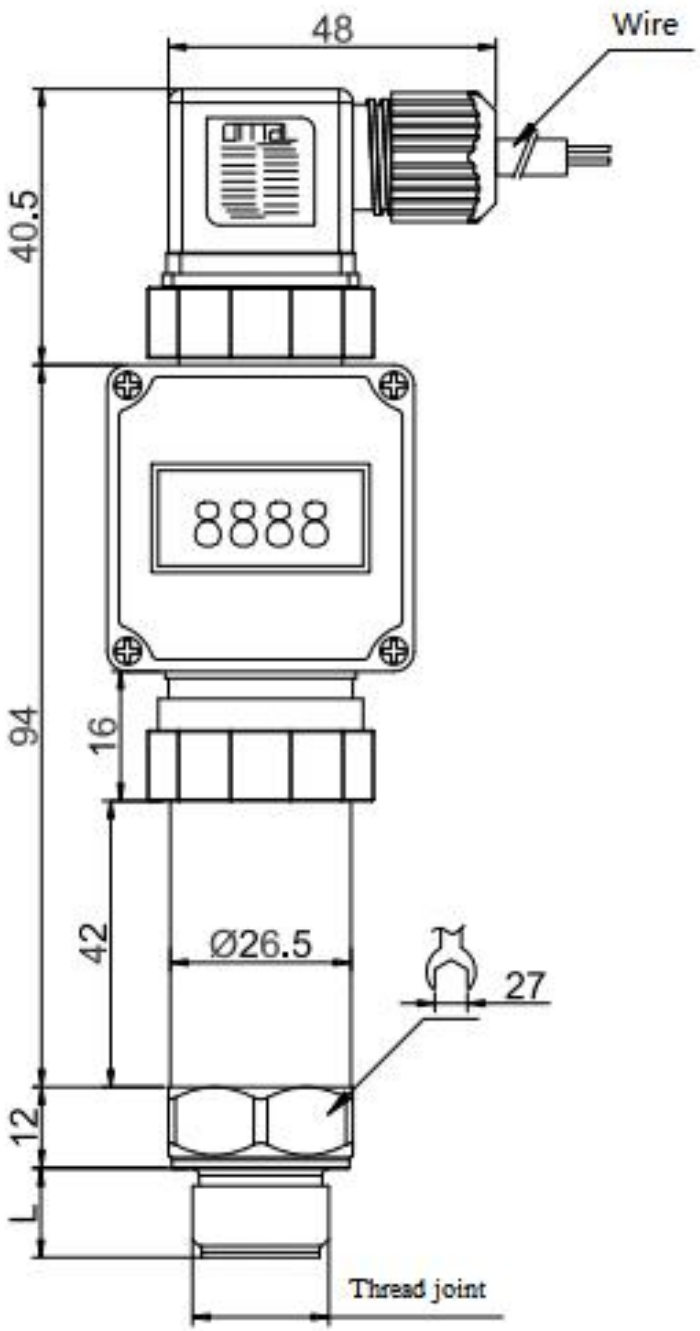

Fig. 5 DIN connector
flat film with display

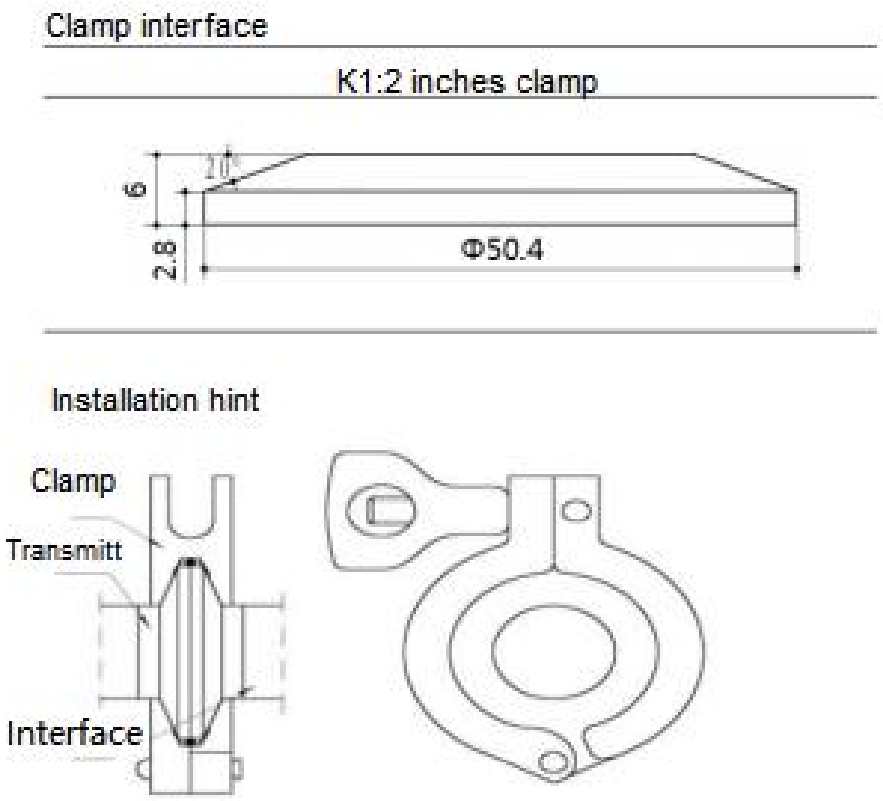

Fig. 6 Clamp connection diagram

Installation Tip:

- The clamp flat film is one-time oil-filled, do not touch the diaphragm to prevent deformation and damage the internal chip.
- DIN connector normal temperature products, the working time should not exceed 10 minutes at the medium temperature of 150 (disinfection time) to prevent the sensor from working improperly due to high temperature.
- When installing or cleaning on site, tighten the DIN connector socket or 2088 housing to prevent water from damaging the internal circuit.

Chapter 4 Parameters

Table 1

Supply	(4~20)mA output (10~32V); (0~10)V output (12~32)V; RS485 output (8~32)V.
Output	(4~20)mA ;(1~5)V;(0~10)V;(0~5)V； RS485
Accuracy	0.5%
Range	Threaded connection flat film :-0.1~ 0...10MPa (range cannot be lower than 10kPa). Clamp connection flat film measuring range:-0.1~. 0... 3.5MPa (range cannot be lower than 10kPa).
Pressure type	Gauge pressure ,sealing pressure
Compensation temperature	-10℃～70℃
Operating temperature	-20℃~85℃
Medium temperature	-20℃~85℃
Storage temperature	-40℃~85℃
Zero temperature drift	±0.3%FS/10℃
Full range output	±0.3%FS/10 ℃

temperature drift	
Overload pressure	150%FS
Stability	±0.2%FS/year
Response time	Current and voltage output:≤10ms (up to 90%FS) Rs485 output:≤100ms (up to 90%FS)
Insulation	20MΩ，250VDC
Insulation strength	50Hz，500VAC
Ingress Protection	IP65
Load resistance	(U-9V)/0.02A,U:Supply voltage

Chapter 5 Wiring

5.1The electrical connection of DIN connector structure is shown below.

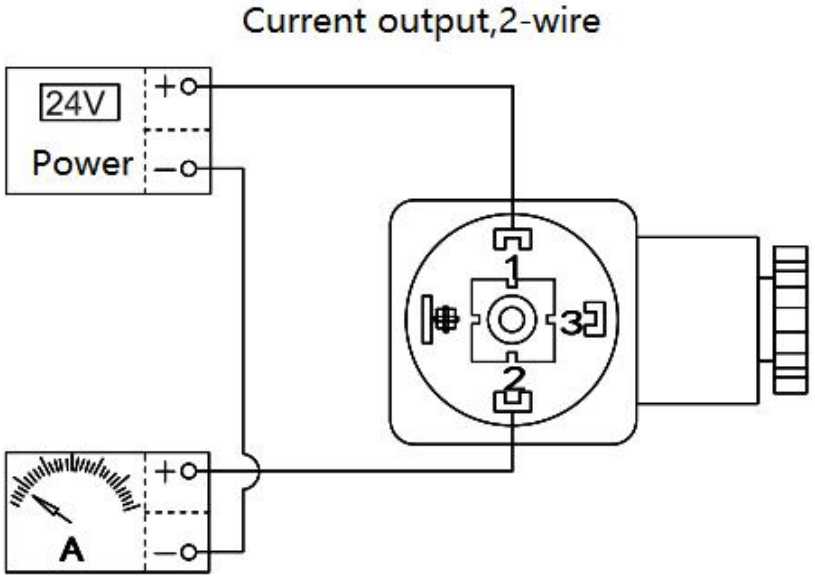

Fig. 7

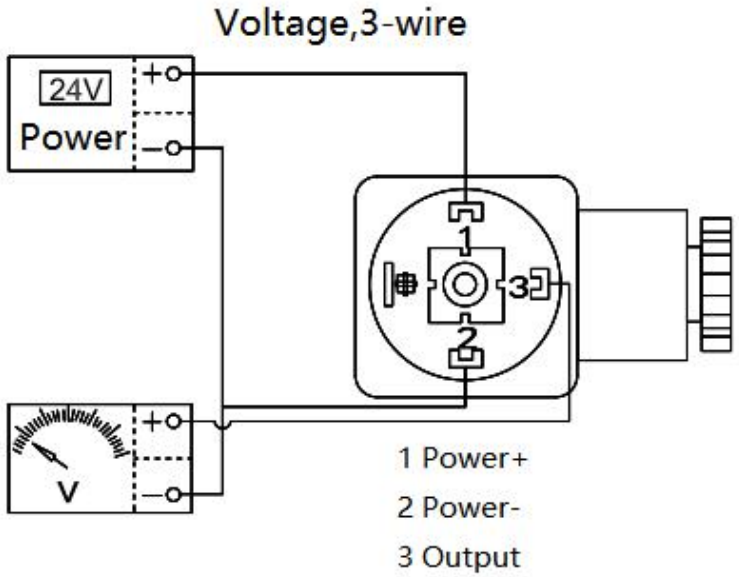

Fig. 8

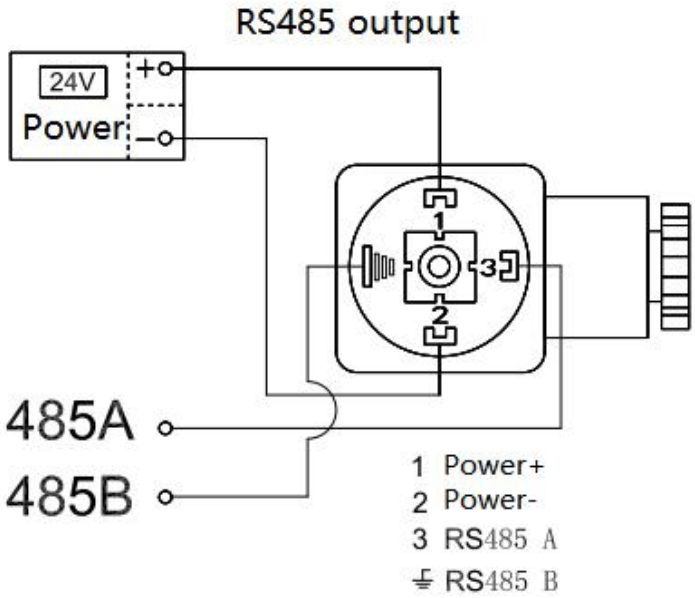

Fig. 9

5.2 Direct lead structure electrical connection

- Current output
  Red line: Power +
  Green line: Current output.
- Voltage output
  Red line: Power +
  Green line: Power -
  Yellow line: Voltage output
- RS485 output
  Red line: Power +
  White line: Power -
  Green Line: RS485+
  Yellow line: RS485-

Chapter 6 Use and Installation

(1) The pressure transmitter is installed as far as possible where the temperature fluctuation is small to avoid vibration and shock.
(2) The pressure transmitter is installed directly on the measuring point, and the threads are connected at the same time: M20mm 1.5, G1amp 2. Special threads or clamps need to contact the salesman.
(3) The signal should not pass through the wire tube or open wire slot together with other power lines, and should not pass through the high-power equipment at the same time.
(4) If the transmitter needs to use the pressure tube, it is necessary to pay attention to the strong corrosive or superheated medium does not touch the transmitter, so as to prevent the slag from precipitating in the pressure tube, and it is necessary to ensure that the pressure tube is as short as possible. At the same time, when measuring steam or other high temperature media, do not let the working temperature of the transmitter exceed the limit. When used for steam measurement, the suction tube should be filled with water to prevent the transmitter from coming into direct contact with the steam.

Chapter 7 Safety instructions for pressure transmitter

(1) Care should be taken when handling and installing the transmitter to avoid collision and affect the performance of the circuit.
(2) There is an isolation diaphragm in the pressure inlet of the transmitter, so do not use foreign body to touch it.
(3) The outer thread of the transmitter should be sealed, otherwise the pressure may be unstable.
(4) In the process of product installation and use, if you encounter problems, please contact our company in time. In the event of an anomaly, please do not repair it without authorization and contact the manufacturer in time.
(5) This product is prohibited to be used in explosion-proof situations.

Chapter 8 Attention

(1) Use a transmitter and place it in a non-corrosive medium of silicon and stainless steel (or aluminum alloy).
the maximum pressure that may occur instantly in the tested
(2) System should not exceed the rated value 150%FS.
the back end of the pressure transmitter shall not be in direct contact with conductive, corrosive liquid or gas.
(3) Do not use sharp and hard things to stab the pressure diaphragm in order to prevent the core from being damaged.
(4) The lead at the back end of the sensor cannot enter the water.
(5) When using it, please strictly follow the matters needing attention, otherwise you will bear the consequences.

Chapter 9 Warranty & After-sales Service

We promise to the customer that the hardware accessories provided during the supply of the instrument have no defects in material and manufacturing process.
From the date of the purchase, if the user's notice of such defects is received during the warranty period, the company will unconditionally maintain or replace the defective products without charge, and all non customized products are guaranteed to be returned and replaced within 7 days.

Disclaimers:

- During the warranty period, product faults caused by the following reasons are not in the scope of Three Guarantees service
- Product faults caused by improper use by customers.
- Product faults caused by disassembling, repairing and refitting the product.

After-sales service commitment:

- We promise to deal with the customer's technical questions within 2 hours.
- For the instruments returned to the factory for maintenance, we promise to issue the test results within 3 working days and the maintenance results within 7 working days after receiving them.

Chapter 10 Communication

This instrument communication protocol mainly complies with MODBUS-RTU communication protocol, including 1 start bit, 8 data bits and 1 stop bit.

The following instructions are defined as assuming that the instrument parameters are: instrument address set to 1, communication baud rate 9600, invalid check place, 1 decimal place, unit MPa, instrument display value 500.0MPa.

In the instruction, the address and data in the read instruction and write instruction are all high bytes, followed by low bytes; CRC checks that the low bytes are before the high bytes and the high bytes are after.

- **Reading pressure value**

Command: 01 03 00 04 00 01 C5 CB.

Instruction description: 01 (instrument address) 03 (read command) 00 04 (pressure value register address) 00 01 (read a parameter) C5 CB (CRC16 verification code).

Response: 01 03 02 13 88 B5 12

Instruction description: 01 (instrument address) 03 (read command) 02 (number of bytes read, 1 parameter is 2, 2 parameters are 4.) 13 88 (13 88 is hexadecimal number 13 is high byte 88 is low byte 88 decimal number is exactly 5000) B5 12 (CRC16 validation code)

- **Zero floating adjustment**

Command: 01 06 00 05 00 01 58 0B.

Instruction description: 01 (instrument address) 06 (write

instruction) 00 05 (instrument communication address) 00 01. (zero floating adjustment code) 58 0B (CRC16 validation code).
Response: 01 06 00 05 00 01 58 0B.
Instruction description: 01 (instrument address) 06 (write instruction) 00 05 (instrument communication address) 00 01 (zero floating adjustment code) 58 0B (CRC16 validation code)

- **Reading parameter values**

Command: 01 03 XX XX 00 01 CRC1 CRC2.
Instruction description: 01 (instrument address) 03 (read command) XX XX (parameter address: see Table 2) 00 01 (read a parameter) CRC1 CRC2 (CRC16 verification code: low byte comes first, high byte comes after).
Response: 01 03 02 XX XX CRC1 CRC2.
Instruction description: 01 (instrument address) 03 (read command) 02 (number of bytes read, 1 parameter is 2, 2 parameters are 4.) XX XX (returned parameter value: high first, low last) CRC1. CRC2 (CRC16 validation code: low byte comes first, high byte comes after)

- **Write parameter values**

Command: 01 06 XX XX data1 data2 CRC1 CRC2.
Instruction description: 01 (instrument address) 06 (read command) XX XX (parameter address: see Table 3) data1 data2 (written parameters: high byte first, low byte last.
See Table 3) CRC1 CRC2. (CRC16 validation code: low byte comes first, high byte comes after).
Response: 01 06 XX XX data1 data2 CRC1 CRC2.
Instruction description: 01 (instrument address) 06 (read command) XX XX (parameter address) data1 data2.

(parameters written: high bytes first, low bytes last.
See Table 1) CRC1 CRC2 (CRC16 verification code: low byte comes first, high byte comes last).

Table 2

Content	Address （Hex）	Data （data1，data2）
Transmitter board address.	00 00	1~255
Baud rate of transmitter.	00 01	1-2400 2-4800 3-9600 4-19200
Unit of measurement.	00 02	0-M 1-kPa 2-MPa 3-℃ 4-L 5-bar 6-psi 7-Pa
Number of decimal places for measurement data.	00 03	Value range：0-4
Shaping measurement output value.	00 04	-32768~32767
Check bit	00 06	0-None 1-Odd 2--Even