PDS800
Smart Pressure Transmitter

Quick Installation Manual

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Chongqing Chuanyi Automation Co., Ltd.

Please read this Manual carefully before using the product

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1 Preface

Thank you for choosing PDS smart pressure transmitter.

Please read this Manual carefully before installation and using so that this transmitter can be applied in your engineering project safely and efficiently. To ensure the security of operator, transmitter and system, please pay special attention to the sentences with warning mark in the Manual and operate according to the relevant standards and security operation rules of the state and the industry strictly.

1.1 Overview

PDS800 high-precision smart transmitter is a high-performance smart differential pressure/pressure transmitter developed by Chongqing Chuanyi Automation Co., Ltd. (hereinafter referred to as Chongqing Chuanyi) based on the integration of international advanced design and manufacturing technology. Equipped with the internationally advanced high-sensitivity monocrystalline silicon composite sensor and characterized by new technologies such as low power consumption, high-speed electronic module components and multi-parameter composite compensation algorithm, this project is developed by advanced intelligent manufacturing technologies such as automatic welding, filling and online testing, ensuring the high precision, high reliability and long-term stability.

It has a variety of intelligent diagnosis and simulation functions, 15 local configuration functions, multiple optional communication protocols, complete specifications of liquid contact materials, etc., and can be widely used in petroleum, chemical industry, electric power, metallurgy, building materials, light industry, nuclear industry, etc.

1.2 Version

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If there are mistakes, omissions or contents difficult to understand in this Manual, please contact Chongqing Chuanyi.

1.3 Installation and maintenance standards

Please comply with the following standards when installing and maintaining the PDS800 pressure transmitter:

1) GB3836.13-2021 Explosive Atmosphere-Part 13:
Equipment Repair, Overhaul, Reclamation and Modification

2) GB3836.15-2017 Explosive Atmosphere-Part 15:
Electrical Installations Design, Selection, and Erection (Except Coal Mine)

3) GB3836.16-2022 Explosive Atmosphere-Part 16:
Electrical Installations Inspection and Maintenance (Except Coal Mine)

4) GB3836.18-2017 Explosive Atmosphere -Part 18:
Intrinsically Safe Electrical System

5) GB 50257-2014 *Code for Construction and Acceptance of Electrical Device in Explosive Atmosphere and Fire Hazard in Electrical Device Installation Engineering*

2 Installation and start

2.1 Environment conditions

Installation environment of the transmitter should meet the following conditions:

2.1.1 Natural environment conditions

Ambient temperature: -40°C~85°C (low-temperature working condition: -60°C~+85°C)

Process temperature: -40°C~120°C

Relative humidity: ≤95% Atmospheric pressure: 86kPa~106kPa

2.1.2 Mechanical environment conditions: Vibration acceleration: ≤2g

2.1.3 Electromagnetic environment conditions

Magnetic field intensity: ≤400A/m

Radio frequency interference: ≤10V/m (80MHz~1GHz)

Electrostatic interference: ≤8000V

Electrical fast transient pulse group interference: ≤4000V (5kHz)

2.2 Product acceptance

Before installing and using the transmitter, please check and accept it according to the order contract and check whether specifications, model, measurement range, tag number, installation manual, quality certificate and other information are correct and complete, and accessories in the packing list are complete. Visually inspect and touch whether the transmitter is damaged in appearance. See Fig.1 and Fig.2 for the breakdown structure of the transmitter.

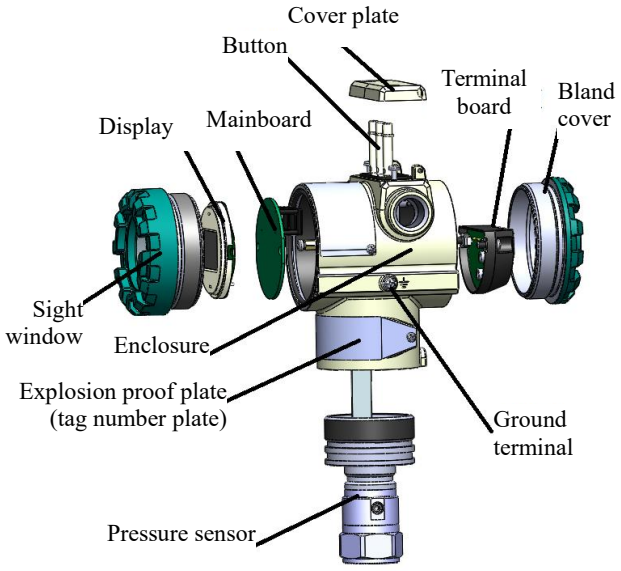


Fig.1 Breakdown diagram of pressure transmitter structure

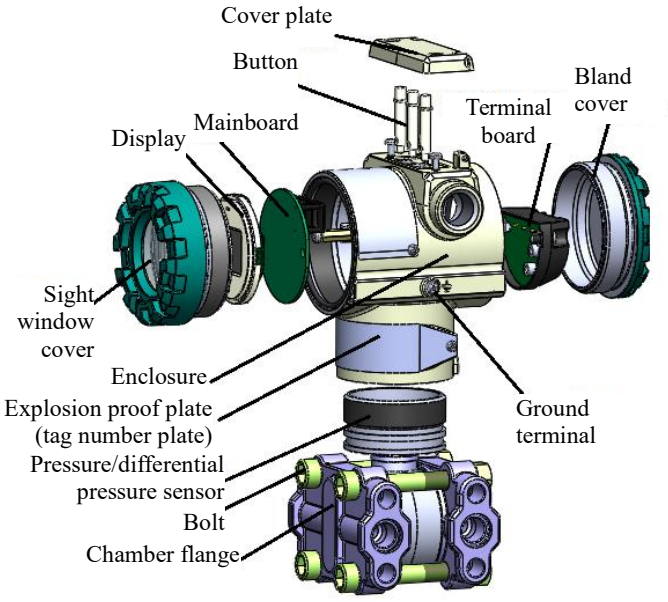


Fig.2 Breakdown diagram of pressure/differential pressure transmitter

Warning

When flame-proof transmitter is powered on, the blind cover or sight glass cover is forbidden to be opened. Therefore, it is forbidden to use handheld terminals to adjust the transmitter and only the keys on the transmitter can be used for adjustment. The sight window cover and blind cover can only be opened after the power supply is cut and the electronic component cavity cools down

internally.

2.3 Electrical connection

Transmitter power (signal) cord should be laid in conformity with the following requirements:

1) Cable should be selected in consideration of mechanical properties, insulation intensity, site interference, environment temperature, environment erosion, etc.

2) Isolated from cables with voltage >60V;

3) Get away from electrical equipment with large power and adopt shielded cables (the shielding layer should be well grounded).

Technical parameters of intrinsic safety type are as follows:

Maximum input voltage (Ui)= 28 V Maximum input current (Ii)= 100 mA

Maximum input power (Pi)= 0.7 W Maximum internal capacitance (Ci)= 15 nF

Maximum internal inductance (Li)= 0 .65mH

Warning

Electrical installation and connection of explosion-proof transmitter must conform to the stipulation of relevant national standards strictly. For flame-proof transmitter, the blind cover is forbidden to be opened for wire connection until the power is cut off. The blind cover should be screwed tightly after wire connection and locked with explosion-proof locking screw to prevent the blind cover from being opened randomly.

2.3.1 Connection of wiring chamber

Transmitter adopts two-wire transmission, with the power connection as shown in Fig.3 and Fig.4.

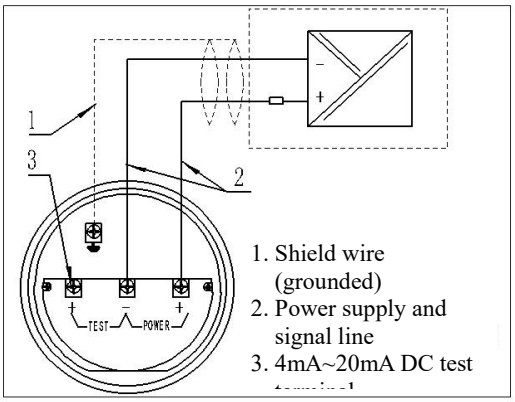


Fig.3 Schematic diagram for connection between transmitter and power supply

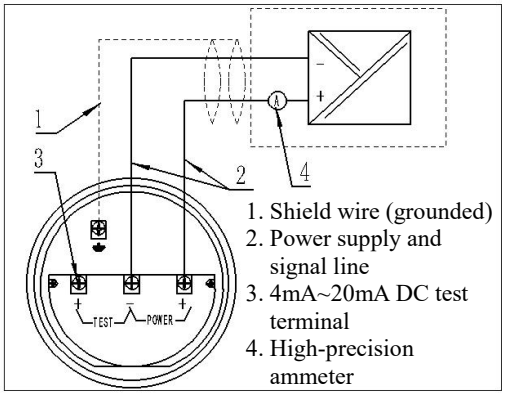


Fig.4 Schematic diagram for connection between transmitter with 0 load resistance and power supply

Prompt: Attentions in Fig.3 and Fig.4:

1) The part marked with 3 can be connected with a DC ammeter with an internal resistance not more than 10Ω to measure a current of 4mA~20mA; when communication connection is needed, the load resistance range is 230Ω~500Ω, and communication terminal should be connected to “+”, “-”ends of connecting terminals and both ends of load resistor.

2) As for intrinsically safe explosion-proof transmitter, the power should be supplied by safety barrier.

3) When the load resistance is zero, connect for test according to Fig.4.

The transmitter forms a return circuit with power and load via cable. In Fig.3 and Fig.4, shielded

cable is adopted and shielding layer is connected to the ground end of the connecting terminal. The ground end has been connected with the transmitter housing, and the other end of the shielding layer has been reliably grounded on site to achieve a good shielding effect.

Range of DC supply voltage U (unit: V) for HART communication: 10.5≤U≤45

Relationship between load resistance R (unit Ω) and supply voltage U (unit V) is as follows:

No HART communication: R≤ (U-10.5) /0.023

HART communication: 230≤R≤ (U-10.5) /0.023≤500

The transmitter forms a return circuit with power and load via cable. In Fig.3 and Fig.4, shielded cable is adopted and shielding layer is connected to the ground end of the connecting terminal. The ground end has been connected with the transmitter housing, and the other end of the shielding layer has been reliably grounded on site to achieve a good shielding effect.

2.3.2 Wires

The transmitter housing has two internal thread specifications of 1/2NPT and M20×1.5, so customers can choose or purchase electrical connectors and electrical blind plugs of corresponding 1/2NPT and M20×1.5 external threads. The transmitter adopts 600V PVC insulation cables or cables with the same specifications. The electrical connection structure between the transmitter and the external structure is shown in Fig.5. For detailed installation introduction, please scan the QR code on the flame-proof plate (tag number plate) and refer to the instruction manual of the corresponding transmitter.

Aluminum housing: The thread is 1/2NPT, equipped with carbon steel galvanized electrical connector and electrical blind plug, with an installation torque of 20N.m; The thread is M20×1.5, equipped with electrical connector and blind plug, with an installation torque 2N.m.

Stainless steel housing: The thread is 1/2NPT, equipped with stainless steel electrical connector and electrical blind plug, wound by sealing tape for 3 and a half cycles; The thread is M20×1.5, equipped with stainless steel electrical connector and electrical blind plug, with an installation torque of 30N.m.

Warning

As for normal or intrinsically safe transmitter, water-proof electrical connector should be used. For explosion-proof transmitter, customers must use explosion-proof connectors and other connectors that meet explosion-proof requirements. The installation of explosion-proof electrical connectors, cables and explosion-proof blind plugs should meet relevant explosion-proof standards and requirements and the minimum tightening torque of explosion-proof sealed connectors should be 30N.m. Cable diameter is 8.5±0.5mm.

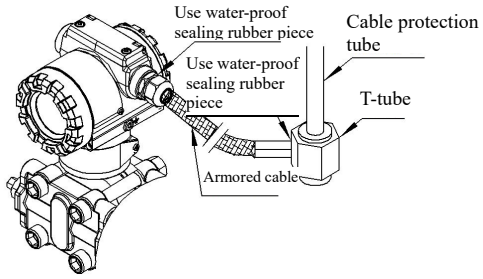


Fig.5 Schematic diagram for electrical connection between transmitter and exterior structure

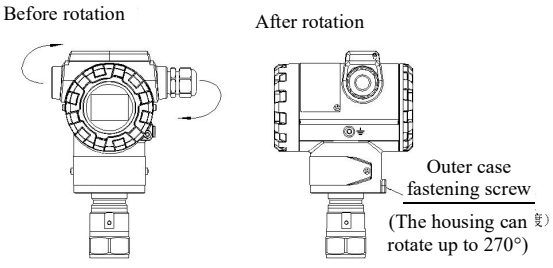


Fig.6 Rotation of electronic chamber of transmitter

2.3.3 Rotation of electronic chamber

The electronic chamber of the transmitter can be rotated by 270° maximumly clockwise or

anti-clockwise according to Fig.6. The specific methods are: loosen the fastening screws of the housing, and then tighten the fastening screws.

2.3.4 Rotation of LCD

The transmitter can be equipped with an optional LCD, which is installed in the housing and sight glass cover. After the transmitter is installed on site, the direction of the display can be changed. The operation method is as: open the sight glass cover, disassemble the installation screw of the display with a special tool, remove the display, and change the direction according to needs (4 directions, each for every 90°)

Warning

As for flame-proof transmitter, in case of power supply, the sight glass cover is forbidden to be opened and the display is forbidden to be rotated.

2.3.5 Grounding

There is internal grounding and external grounding in the transmitter, and both of them have grounding mark. Either one place or both places can be selected for reliable grounding. The minimum cross section of the grounding wire of ATEX/IECEx certified explosion-proof product is 4mm^2, and the minimum tightening torque of the grounding screw is 5.1N.m.

2.4 Pressure process connection

Before pressure process connection, please confirm whether relevant pipes are smooth and relevant structural parts are strong enough; in pressure process connection, please confirm relevant valves have been turned off; after connection, please confirm the medium of the connection part has good sealing performance; when it is necessary to drain or vent, corresponding safe measures should be adopted, to avoid high pressure or corrosive medium from causing personal injury or property loss. The transmitter can be installed through horizontal and vertical piping. For detailed installation, please scan the QR code on the flame-proof plate (tag number plate) and refer to the instruction manual of the corresponding transmitter.

Prompt

For the pressure (or absolute pressure) transmitter directly installed on the pipe with process threads, it is strictly forbidden to fasten or disassemble the transmitter housing as the stress point, and special tools such as wrenches must be used to operate with the hexagonal plane of the sensor as the stress point.

Prompt

For PDS815, 843, 863 and 883 differential pressure transmitters, the H side appearing in the Manual can also be expressed as positive pressure (+) side and high pressure side; The L side appearing in the Manual can also be expressed as negative pressure (-) side and low pressure side. After the installation of PDS815, 843, 863 and 883 differential pressure transmitters is completed, the impulse ports on H and L sides should be on the same horizontal line. If the side exhaust and drainage are not selected in the order, there is no process blind plug on the side of the transmitter. If the back exhaust and drainage are selected in the order, the exhaust and drainage screw is in the position of process blind plug. When the impulse port is downward, the exhaust and drainage are on the side.

2.4.1 Installation of transmitter

PDS803 and 813 transmitters are directly installed with threads, PDS815 clamp type transmitter with clamps, PDS815 slotted nut type transmitter with nuts, and PDS805 and 843 transmitters with fixed mounting plates. PDS815 flat flange type and 863 liquid level transmitters are installed with

flange and basic meters of PDS815, 873, 879 and 883 remote flange transmitters with fixed mounting plate, and measuring parts with flange. Before installation of flange transmitter, companion flanges, bolts, washers, nuts and other parts corresponding to the transmitter flange standard should be provided. The protection of the exposed isolation diaphragm in contact with the medium during installation should be paid attention to. Any damage will affect the performance of the transmitter.

2.4.1.1 Impulse port of system

The sediment and residual liquid in the penstock will enter the impulse pipe, which will lead to errors in pressure measurement. To eliminate these effects, the impulse valve should be installed in the angle range shown in Fig.7.

When the process medium is liquid, the impulse port should be kept at the horizontal level or within 45° below the horizontal level;

When the process medium is gas, the impulse port should be kept upward vertically or within 45° with the vertical upward direction;

When the process medium is steam, the impulse port should be kept at the horizontal level or within 45° above the horizontal level.

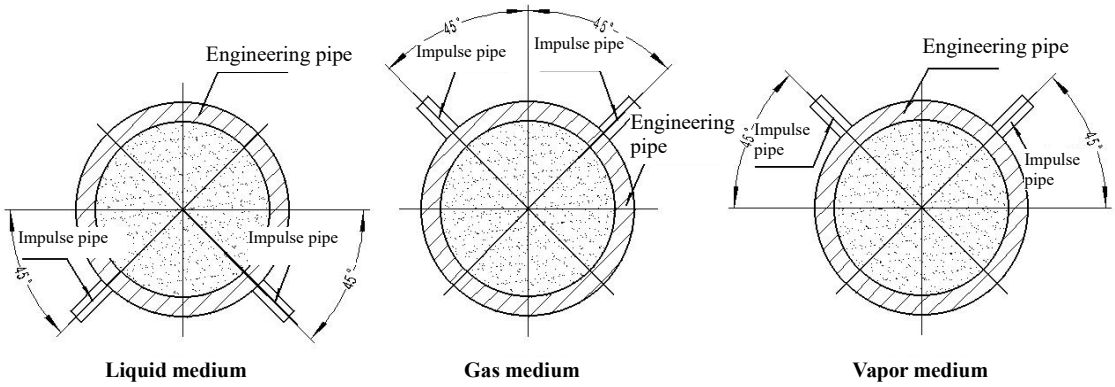


Fig.7 Position of impulse port

The impulse pipe should be arranged vertically or obliquely, even if it is arranged horizontally, it should be moderately inclined so that the process medium will not remain in the pipe.

2.4.1.2 Position of transmitter

When the process medium is liquid or steam, in principle, the position of the transmitter should be lower than the impulse valve;

When the process medium is gas, in principle, the position of the transmitter should be higher than the impulse valve.

2.4.1.3 Since the pressure/differential pressure transmitter has high measurement accuracy, the installation precautions are as follows.

1) Prevent function loss or product damage caused by improper use;

2) It is required to remove the factors that are likely to cause misjudgment in measurement, such as small external pressure fluctuations;

3) If the filling liquid contact temperature of the flange transmitter is lower than the ambient temperature, a heat tracing device should be added to the flange;

4) The bending radius for field installation of the capillary of flange transmitter should be greater than 30 mm. Protection and insulation measures should be taken for the capillary.

5) Prevent temperature difference, condensation, frost, and wind.

a) Try to prevent temperature different in process connection between the H and L sides of the differential pressure transmitter, because the temperature difference will change the medium density and thus lead to measurement error.

b) When the pressure and differential pressure transmitter is used to measure the steam medium, the liquid in the process connection will condense and evaporate repeatedly due to the change of process temperature or environment, which will produce liquid columns of measurement errors. Therefore, please use a condensation tank when measuring the steam.

c) Appropriate measures should be taken to prevent the freezing of process fluid in the pressure and differential pressure transmitter and the impulse pipe. The solidified medium may damage the pressure transfer diaphragm.

d) When measuring micro-pressure with a differential pressure transmitter, the low-pressure side should have a stable reference pressure. If the reference pressure is atmospheric, it should be ensured that there is no wind. At this time, the transmitter might be placed in a protection box or the low-voltage side might be put into a wind-proof box.

Examples:

1) For a PDS863 level transmitter installed in the open air, the measurement accuracy of the transmitter may be affected by liquid accumulation and freezing when the impulse hole on L side is vertical or horizontal.

2) Rain, snow, wind or other external disturbances applied to the pressure sensing unit of the pressure/differential pressure transmitter will change the output value.

In response to the above cases, necessary protection measures should be taken, such as wind-proof box (protective cover) and U-shaped impulse pipe.

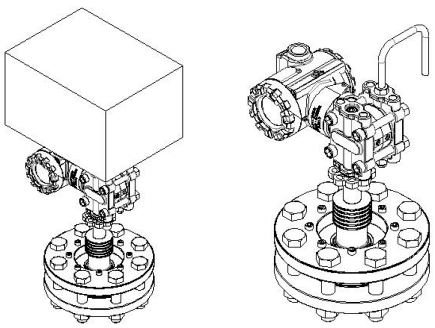


Fig.8 Diagram of wind-proof box (protective cover), U-shaped impulse pipe

2.4.2 Installation position of flange transmitter

In principle, the basic meter of flange transmitter should be installed under the remote transmission flange, so that the drop of remote transmission sealing liquid can be added to the transmitter body as much as possible. If the above requirements cannot be met due to setting conditions or objective reasons, the installation position should meet the following requirements.

$$h=\frac{P_c}{\rho \times g}\times 10^3 (mm)$$

h: the height of the remote transmission flange from the basic meter of the transmitter (mm);

ρ: Density of remote sealing liquid (kg/m^3)

g: Local gravity acceleration (sea level reference value: 9.8m/s^2)

P_C: Pressure to be measured (Pa abs/ absolute pressure)

Tab.1: Density of remote sealing liquid (reference temperature 25°C)

Code of remote sealing liquid	A	B	C	F	U
Density of remote sealing liquid (×103 kg/m^3)	1.07	0.94	1.09	1.87	6.44

When h≤0, the transmitter should be installed at the position with a vertical height ≥h (absolute value mm) below the remote transmission flange;

When h > 0, the transmitter can be installed at the position with a vertical height < h (mm) above the high remote transmission flange.

2.4.3 Structural parts for mounting

The PDS800 pressure transmitter should be installed by the combined structure of mounting plate +U-bolt+installation bracket+clamp, and the diameter of mounting pipe is required to be Φ50mm~Φ60mm. The assembly steps are as follows: firstly assemble the mounting plate with the field mounting pipe with U-bolts and nuts, then assemble the installation bracket with M8 screws, and next assemble the transmitter on the installation bracket, or connect the transmitter with the mounting plate first, and then connect it to the mounting pipe. The assembly torque of all screws and nuts is 20N.m.

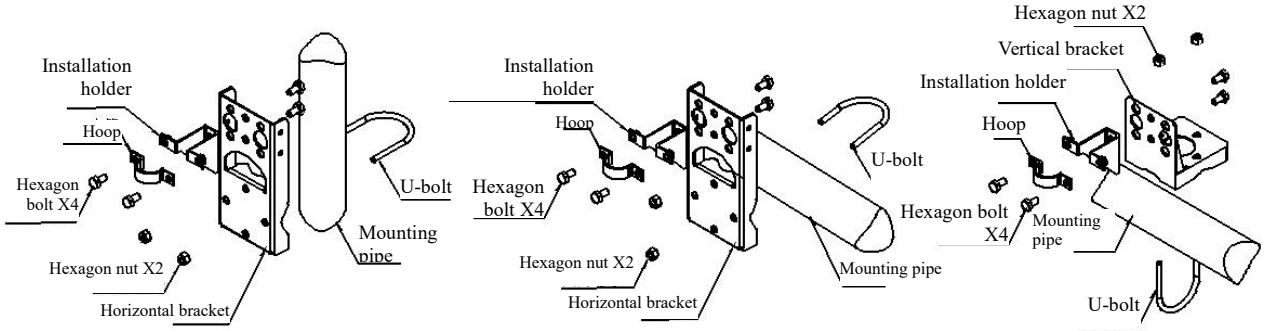


Fig.9 Structural parts for transmitter installation

3 Setting

There are many ways to set the transmitter: local key (with display), handheld terminal, upper computer, etc. The setting is described in detail in this chapter. For detailed installation introduction, please scan the QR code on the flame-proof plate (tag number plate) and refer to the instruction manual of the corresponding transmitter.

3.1 Setting description

The transmitter is set through the cooperative operation of the display and three keys: loosen the two screws on the top of the transmitter, open the key protection cover, and use the three keys of "S", "+"and "-"to set the transmitter. After the operation, the protective cover must be closed and fastened with screws.

3.2 LCD

The transmitter can be equipped with LCD for variable display and local setting operation, all of which are shown in Fig.10.

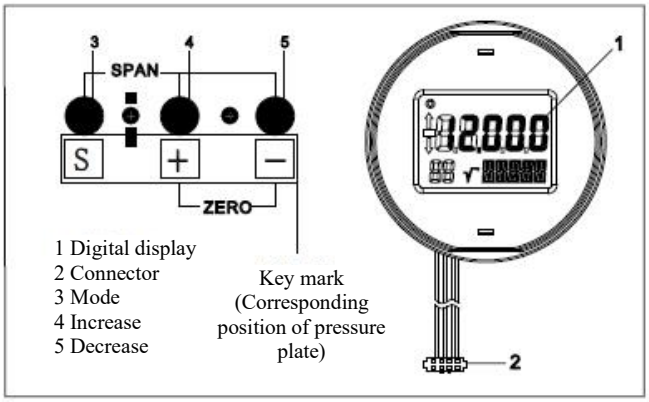


Fig.10 Schematic diagram for key and display

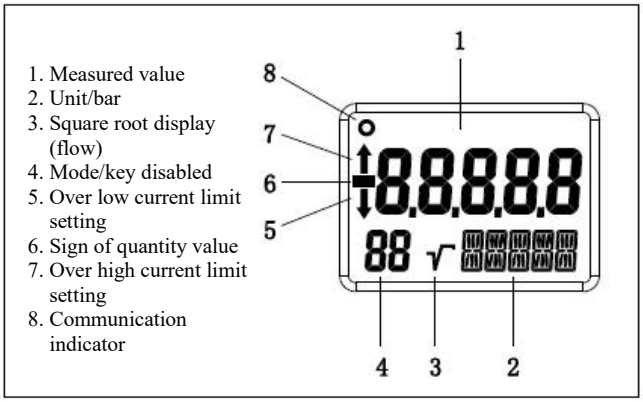


Fig.11 Description of display window

Prompt: attentions in Fig.11:

1) 5 and 7 in the figure indicates that the setting or output exceeds scope restriction;

2) 8 in the figure is communication indicator mark. When the transmitter is under communication status, the indicator mark flashes.

When the transmitter is in a fault state, the error information is shown in Tab.2.

Tab.2 Error information of transmitter

Code	Error information
Err 1	For error in sensor compensation data, re-compensate or replace the sensor
Err 2	For abnormal AD pressure sampling, replace the sensor
Err 3	For abnormal AD temperature sampling, replace the sensor
Err 4	If the pressure exceeds the sensor span, check whether the actual pressure exceeds the limit, or replace the sensor
Err 5	For error in calibration coefficient of AD, re-calibrate the AD or replace the sensor
Err 6	For error in current calibration coefficient, re-calibrate the current or replace the mainboard
Err 7	For jamming EE, replace the mainboard
Err 8	If sampled AD overflows, check whether the actual pressure exceeds the limit and the

	span ratio is large, or replace the mainboard.
Err 9	For open circuit of temperature sensor, check the acquisition board or replace the sensor

3.3 Key operation

The transmitter is usually in the normal display of the measured value. Press [S] to select the setting mode, and then press [+] or [-] or both [+] and [-] to change the assignment. See Tab.3 for details.

Tab.3 Summary of key functions

Function description	Mode	Description of key functions			Notes
	[S]	[+]	[−]	Press both [+] and [−]	
Display measured value normally					Display pressure value or current value or percentage value (display variable is determined by Mode 13).
Display fault					For any error, display fault code
Hide options in Mode 2 and Mode 3	1	Switch between "yes" and "no"			Select yes and then press [S] to enter Mode 2, otherwise directly enter Mode 4
Set reference pressure to zero	2	Increase current output	Decrease current output	Set as 4mA	Set the current value corresponding to the current pressure
Set reference pressure span	3	Increase current output	Decrease current output	Set as 20mA	
Damping time	4	Increase damping time	Decrease damping time	Set as 0s	Time constant of 0s~100s
Set zero for no reference pressure	5	Increase lower span limit	Decrease lower span limit	Set as 0kPa	
Set span for no reference pressure	6	Increase upper span limit	Decrease upper span limit	Set as maximum upper span limit	
Zero-pressure adjustment	7			Implementation	For absolute pressure transmitter, it should be implemented after vacuumizing, and for other transmitters, it should be implemented after release of process pressure
Analog constant current output	8	Switch between seven kinds of constant current outputs		Activate constant current output	Fixed current output: constant current of 3.6mA, 4mA, 8mA, 12mA, 16mA, 20mA and 22.8mA; Press [S] to close.
Selection of fault alarm current	9	Switch between two limit values			Analog current output options during fault alarm: 3.6mA (low limit alarm), 22.8mA (high limit alarm), H-L (high limit alarm for over-sensor upper limit and low limit alarm for over-sensor lower limit), OFF (turn off fault current output and send alarm only through the display)

Function disabled	10	Switch between two functions			O = Not disabled L =Write-protection, invalid HART operation (communication can be viewed but parameters cannot be changed)
Output mode (for differential pressure only)	11	Switch among three functions			Lin = linear Srlin = square root (linear output before the action point) Sroff = square root (signal cutting before action point) Srli2 = square root (0.6% linear+linear output before action point)
Action point for square root (for differential pressure only)	12	Increase	Decrease	10%	Mode 12 is only available after square root is selected in mode 11 Percentage between 5% and 15% (resolution 0.1%)
Selection of display mode	13	Switch among eight options			Pressure value, current value, span percentage, pressure and temperature switching display, pressure and current switching display, pressure and percentage switching display (the latter three modes are supported by software versions above 1.81), flow display and
Selection of pressure unit	14	Switch of pressure unit			Selection of pressure unit
Process parameters	15	Switch among nine options			1) Ambient temperature 2) Medium temperature 3) Pressure millivolt 4) Temperature millivolt 5) Upper limit of pressure calibration 6) Lower limit of pressure calibration 7) Upper limit of sampling 8) Lower limit of sampling 9) Error logging 10) Original pressure 11) Software version number (1.875, supported by versions above 2.05).
Medium density	16	Increase	Decrease	1.000	When the unit is mh20 or mmH2o, the density of the process medium should be set, which can be used to measure the actual medium level. The default value is water density (supported by software versions above 1.81).
Decimal places	17	Increase	Decrease		The decimal places for pressure display are set, and the default value is fixed unit, i.e. the number of digits corresponding to the span (supported by software versions above 1.83).
Response mode	18	Switch between two modes FAST and FLT		FLT	When FLT is selected, the minimum damping parameter is 0.5 (supported by software versions above 1.83).
Selection of flow unit	19	Switch flow unit		Nm^3/h	Options 19 and 20 can only be available in square root mode
Upper limit URV configuration of flow measurement	20	Increase	Decrease	0	Adjustment range: 00000~99999

4 Maintenance and repair

4.1 Transportation and storage

Prior to delivery to the site, handle transmitters in original package to avoid damage to the transmitter. The storage place of the transmitter should meet the following conditions: temperature as -40~85°C, humidity ≤95%, free from rainfall, avoiding shock and vibration as much as possible. When the used transmitter needs to be stored, the residual medium in the measuring part should be cleaned first, and the transmitter components should be intact and fastened.

4.2 Calibration equipment

The transmitter is a precision instrument, part of the calibration instruments used for it are of high requirements. The following Tab.4 lists the main calibration equipment and technical requirements.

Tab.4 Calibration equipment for the transmitter

Equipment name	Technical requirement
DC power	Adjustable in the range of 10.5V~45V DC
Digital voltmeter	At least 6 digit display precision
Standard sampling resistance	250Ω, 2W, with the precision above grade 0.01
Load resistance	0Ω~1250Ω, 2W
Pressure generator	Pressure source meets the transmitter span
Standard pressure gauge	The measuring range should be close to the span of the transmitter, with accuracy of 0.01% or above.

The calibration equipment should pass the test of inspection institutions recognized by the state and be in validity term.

4.3 Routine maintenance

When the transmitter is maintained regularly, it may be necessary to check whether the basic performance of the transmitter still meets the field requirements. Then, it is necessary to disassemble the transmitter and use the equipment listed in Tab.4 to test the transmitter. The test principle is shown in Fig.12 and Fig.13. Depending on the medium, after the transmitter is used for a period of time, it may be necessary to clean the measuring part. During cleaning, be careful not to use hard objects to damage the isolation diaphragm that is in contact with the medium. After cleaning, the measuring part should be reinstalled in the system. Before use, the transmitter should be zeroed and its performance parameters should be tested.

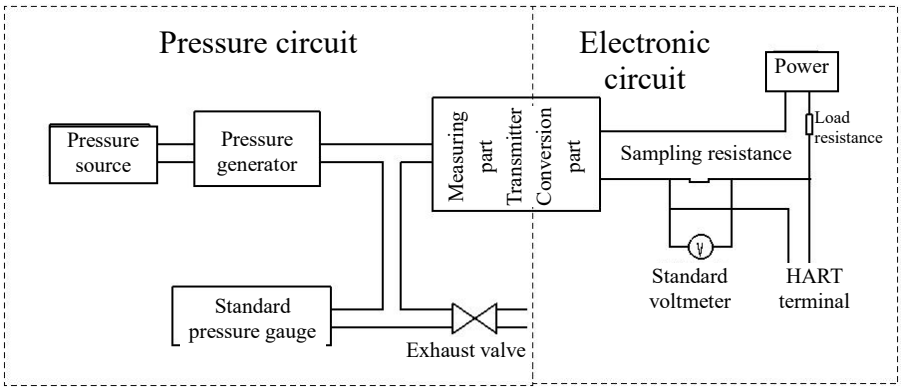


Fig.12 Schematic diagram of PDS pressure transmitter test

After releasing the system pressure, loosen the process connection of PDS803, 813 and 815 transmitters and remove the transmitters. The disassembly method of PDS805 transmitter is as follows: unscrew the drainage core, drainage blind plug and drainage screw in turn; Unscrew four pairs of screws and nuts for clamping the chamber flange and take down the chamber flange; Clean the diaphragm capsule and chamber flange. During cleaning, be careful not to use hard objects to damage the isolation diaphragm in contact with the medium. After cleaning, the transmitter should be reassembled completely according to the reverse steps of disassembly.

When PDS805 is equipped with a span of 16MPa (E) and a high pressure span of 40MPa (F), the assembly torque of chamber screw and nut is 40N.m and 80N.m, the assembly torque of process blind plug, exhaust and drainage screw is 40N.m, and the assembly torque of exhaust and drainage core is 5 N.m.

The disassembly method of PDS815, 873 and 879 transmitters is as follows: release the system pressure; unscrew the connecting bolt and nut between the remote measuring part of the transmitter and the measured container to remove the measuring part from the system; unscrew the bolt between the installation pipe and take down the transmitter body; and clean the pressure measuring flange and isolation diaphragm. After the cleaning of the measuring part, the transmitter should be reassembled on the system according to the reverse steps of disassembly.

Caution

When disassembling and cleaning the measuring part, take necessary measures to prevent the remote isolation diaphragm and sealing surface from being damaged. In addition, the process connection parts between the flange transmitter body and the remote measuring part should not be loosened, otherwise the flange transmitter will lose the function of remote measurement (for the parts that cannot be disassembled, the relevant parts of the transmitter are marked in red).

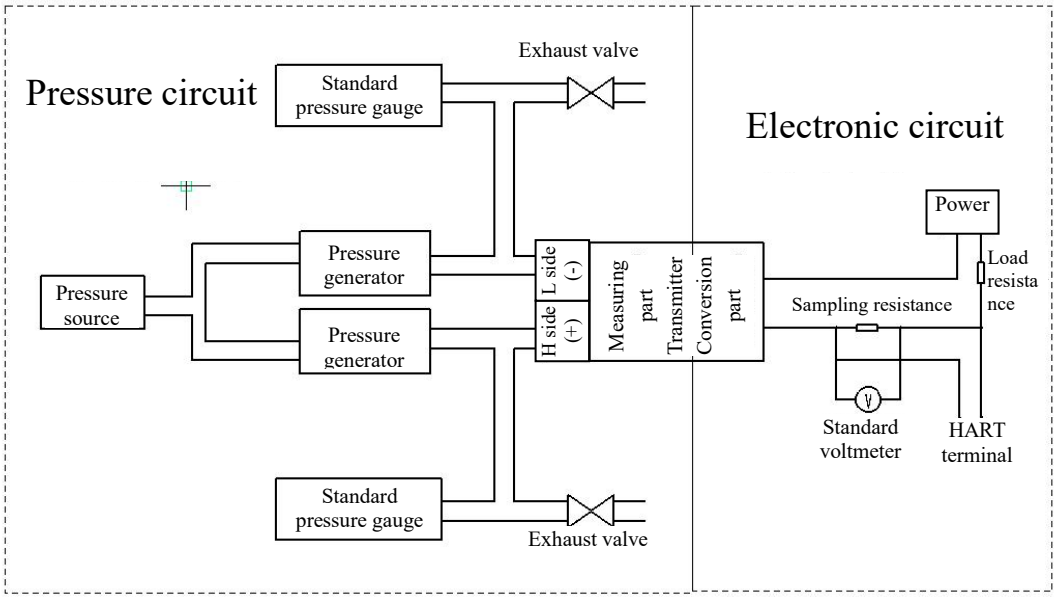


Fig.13 Schematic diagram for PDS differential pressure transmitter test

In Fig.13, H is the positive pressure (high pressure) side of the transmitter, and L is the negative pressure (low pressure) side of the transmitter. During the test, the transmitter should be fixed, and the impulse ports on H and L sides are on the same horizontal line. In most cases, only the H side of the transmitter needs to be tested.

The disassembly method of PDS843 transmitter is as follows: unscrew the drainage core, drainage blind plug and drainage screw in turn; unscrew four pairs of screws and nuts for clamping the chamber flange and take down the chamber flange; and clean the diaphragm capsule and chamber flange. During cleaning, be careful not to use hard objects to damage the isolation diaphragm of the transmitter. After cleaning, the measuring part should be reassembled completely according to the reverse steps of disassembly. The assembly torque for the chamber screw and nut is 40N.m, for chamber screw and nut of high static pressure PDS843H is 80N.m, for process blind plug and the exhaust and drainage screw is 40N.m, and for exhaust and drainage core is 5N.m. After reassembly, working pressure test is adopted to check whether the measuring part leaks.

The disassembly method of PDS815, 863 and 883 transmitters is as follows: release the system pressure; unscrew the connecting bolt and nut between the remote flange of the transmitter and the measured container to remove the flange from the system; and then remove the PDS863 transmitter. Unscrew the bolt between the transmitter and the mounting plate and take down the basic meter of the transmitter; and then take down the PDS883 transmitter. Clean the pressure measuring flange and isolation diaphragm. After the cleaning of the measuring part, the transmitter should be reassembled on the system according to the reverse steps of disassembly.

Caution

When disassembling and cleaning the measuring part, take necessary measures to prevent the remote isolation diaphragm and sealing surface from being damaged. In addition, the four assembly bolts of the measuring part should not be loosened, otherwise the transmitter will lose the function of remote measurement (for the parts that cannot be disassembled, the relevant parts of the transmitter are marked in red).

If the medium is sticky and easy to block and crystallize during the use of diaphragm sealing transmitter, a flushing ring should be added for regular flushing.



Attention

Before welding or repair welding of the lead-out flange of field devices and equipment, the transmitter must be disassembled, and it is forbidden to connect the metal part of the transmitter with the welding torch.

4.4 Maintenance

When the transmitter fails, you may contact the distributors or SIC group and provide some information about instrument model and specification, fault condition and environmental condition to facilitate rapid and efficient troubleshooting.

4.5 Disposal of transmitter

Upon the expiration of service life, the transmitter should be disposed of by an enterprise with the qualification to dispose of waste electrical and electronic products in accordance with relevant national and local laws and regulations.

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CM0-202503, Ver.1