

Model PB570 differential pressure transmitter incorporates differential pressure measurement and switch control function as a whole; it can be used for positive and negative pressure as well as differential pressure measurement. This transmitter has 2 switch outputs, can be configured into 3 different control logics by 2 control points parameter and there is no need to have a specialized controller to achieve limit control, window control and other functions.

Our product has two types, the ordinary and the explosion-proof series.

The explosion-proof type is intrinsically safe, the executive standards are "GB3836.1-2010 «Explosive Atmospheres-Part 1: General Requirements for Equipment»", "GB3836.4-2010"

«Explosive Atmospheres-Part 4: Equipment Protection by Intrinsic Safety “I”», “Q/ROS2018TS-2016” enterprise standard.



Application range	Features
Monitoring of gas and flow	Digital calibration
Combustion control system	Well protection
Industrial pressure control	High precision
Environmental pressure control	High stability Compact structure

Specification list						
Measurement range	Type1 (0~)	100~800 Pa	1.0~1.6 kPa	2.5~4.0 kPa	6.0~10.0 kPa	16~25 kPa
	Type2 (±)	50~400 Pa	0.6~1.0 kPa	1.6~2.5 kPa	4.0~6.0 kPa	10.0 kPa
Overload pressure	(kPa)	25	50	50	50	70
Rupture pressure	(kPa)	50	75	125	200	210
Measuring error	FS≤800Pa	1.0%FS			Output signal	4~20mA , 0~20mA
	FS>800Pa	0.5%FS				1~10V , 0~10V
Thermal zero drifts	max.	0.2%FS/10 °C			Supply	10~ 32VDC/Conventional
	typ.	—				10~24VDC/EX.type
Measurement range temperature drift	max.	0.5%FS/10 °C			Ambient temperature	-20~80℃/Conventional
	typ.	—				-20~60℃/EX.type
Load capacity	Current mode	$R_L \leq (U - 5V) / 0.02A$ (U-Supply)			Ambient humidity	0~95%RH
	Voltage mode	$R_L \geq 10k$			Ambient pressure	86kPa~106kPa
Switching characteristic	EMR: 2A 30VDC / 2A 200VAC				Barrier property	IP66
	SSR: 0.1A 60V AC/DC RON<0.8ohm(typ.)				Storage temperature	-25~80℃
Pressure connector	Quick coupling				Electrical connection	M12 Aviation connector
Explosive-proof effect	Explosive-proof mode	Intrinsically safe type			Ex – mark	Ex ia IIC T4
	Explosive-proof certification	Please refer to the Certificate of Conformity				
	Intrinsically safe specification	Ui=28V, li=93mA, Pi=0.66W				
	Associate apparatus	WP-8047-EX、WP-8012-EX				
PS: temperature drift parameter is the temperature characteristics within 0-50℃ temperature compensation. Intrinsic safety only have SSR switch						

<p>Illustration of Outline Dimension</p> <p>Unit: mm</p>	<p>Installation and Operation</p> <p>Intrinsically Safe Wiring Diagram for PB570</p> <p>Dangerous Zone Safe zone</p> <p>Front of the instrument</p> <p>SP (Power switch)</p> <p>Power supply 20-30V DC</p> <p>WP-8012-EX</p> <p>Signal(4-20mA)</p> <p>Power supply 20-30V DC</p> <p>WP-8047-EX</p> <p>Note:</p> <p>Improper installation may result in overload pressure, if the pressure exceeds the allowable upper limit value, the product may be damaged. In order to avoid the damage to the product, it is necessary to prevent exceeding the overload pressure limit during the operation.</p>
<p>Illustration of Electrical Connection</p> <p>Front of the instrument</p> <p>Power input Signal output</p> <p>Switch output</p> <p>24VDC</p> <p>sp 1</p> <p>sp 2</p> <p>Internal connection</p>	<p>Installation and Operation</p> <p>Fix the device</p> <p>It is recommended to install vertically by fixing the mount to a wall or other suitable flat surface. M4 screws can be used for fixing and the mount specification can refer to the "Illustration of Outline Dimension".</p> <p>Process connection</p> <p>The pressure connector adopts pneumatic joint, which suitable for the pneumatic pipe (such as PE pipe) with the specification of $\phi 8/\phi 6$. The connector marked "H" is connected with the "High" pressure of the differential pressure under tested, and the connector marked "L" is connected with its "low" pressure. The insertion of the pneumatic pipe must be in place to avoid low air-sealed.</p> <p>Electrical connection</p> <p>Our products use two aviation plugs for electrical connection, one of them is shared by power and signal output, and two switch outputs share another one. According to the "Wiring Diagram", cables with outer diameter 4-6mm are recommended. Intrinsically safe products must be used with the safety barrier, to compose the intrinsically safe explosion-proof system (refer to the above Intrinsically Safe Wiring Diagram). Please pay attention to the supply voltage, the intrinsically safety products is lower than the normal ones.</p>
<p>Installation and Operation</p> <p>Fix the device</p> <p>It is recommended to install vertically by fixing the mount to a wall or other suitable flat surface. M4 screws can be used for fixing and the mount specification can refer to the "Illustration of Outline Dimension".</p> <p>Process connection</p> <p>The pressure connector adopts pneumatic joint, which suitable for the pneumatic pipe (such as PE pipe) with the specification of $\phi 8/\phi 6$. The connector marked "H" is connected with the "High" pressure of the differential pressure under tested, and the connector marked "L" is connected with its "low" pressure. The insertion of the pneumatic pipe must be in place to avoid low air-sealed.</p> <p>Electrical connection</p> <p>Our products use two aviation plugs for electrical connection, one of them is shared by power and signal output, and two switch outputs share another one. According to the "Wiring Diagram", cables with outer diameter 4-6mm are recommended. Intrinsically safe products must be used with the safety barrier, to compose the intrinsically safe explosion-proof system (refer to the above Intrinsically Safe Wiring Diagram). Please pay attention to the supply voltage, the intrinsically safety products is lower than the normal ones.</p>	<p>Debugging and setting</p> <p>Display and buttons</p> <p>Switch 1 indicator</p> <p>Switch 2 indicator</p> <p>Measured value display</p> <p>Unit instruction</p> <p>From left to right, the buttons are: up, mode/confirm, down.</p> <p>Overview of parameter settings</p> <p>For the convenience of explanation, the initial state after power on the transmitter can be defined as "General display status", when enter into the menu program, the state of parameter setting is defined as "Menu setting status".</p> <p>Each parameter of the device can be set by the corresponding menu item, and every parameter corresponds to one menu item. In addition, there are a small number of parameter-free menu items that perform specific functions.</p>

Debugging and setting

Menu operation flow: enter menu setting state; select the corresponding menu item, which parameter need to be modified; enter the menu item; modify the parameter; exit the menu item and at last exit the menu setting state (return to the general display status).

Enter menu setting status: in the general display, press the mode/confirm key. If the password is set to 0, enter the menu setting state, first display ESC menu, otherwise display PRS menu. The menu functions please refer to the description below.

Select menu items: press up or down key to switch menu, and each press can switch one menu item.

Enter the menu item: press the mode/confirm key

Parameters modification: the upturn button and the down button can change the figure. A minimum unit will be added or decreased by the parameter value per click of the upturn or down buttons. If the upturn or down buttons are pressed several times (more than 8 times), the changing number (absolute value) of the parameter value will increase gradually. Specifically, if the initial parameter value is 0, then pressing the upturn button 8 times and adding 1 to the initial parameter values each time, the final parameter value will be modified for 8; same, if the initial value is 0, but clicking the upturn button 10 times, then the value will be changed to 27. Because in the first 8 times, each time adds 1 unit to the initial parameter, the Ninth click adding 9 and the tenth click adding 10, the total added value: 8+9+10=27. This function has the same effect on the down button. As long as the time between two pressings is more than 0.3 seconds, which is seen as the discontinuous pressing, then the changing number is immediately back to 1 unit.

⚠ Attention: 0.3 seconds is only an estimated number. The actual feeling is a micro pause that is regarded as a discontinuous pressing and users do not have to care about the time accuracy of the button operation. The empirical method: if the number needed modification is small, users should be slow down the speed of button pressing and avoid excessive modification; on the contrary, users can press key continuously, pay attention to the changing parameter, and have a pause when the number closing, then continue to operate.

Exit the menu item: press the mode/confirm key

Exit menu setting status: execute **ESC** menu item or **0E** menu item

Damping setting

Corresponding menu: **dRn**

The damping setting is used to stabilize the sampling signal and make the data display and the signal output more stable. The damping setting range is 0.0-100.0s. The larger damping settings can make the display and output stable, but the corresponding time can be also increasing, the practical use should be set according to the measurement and control requirements.

Switch 1 control parameters:A1.B1 and D1

Corresponding menu: **r1R r1E r1d**

A1 and B1 parameters are in accordance with the size of the combination, which can form three kinds of control logic. Logic 1 can achieve the upper limit open, hysteresis off function; Logic 2 can achieve point to point control; Logic 3 can achieve window control. Details are as follows:

Logic 1: A1<B1, measured value>B1 switch action, when the measured value<A1, the switch reset.

Logic 2: A1 = B1, the measured value>B1 switch action, when the measured value <A1, the switch reset.

Logic 3: A1> B1, B1<measured value <A1 switch action, otherwise reset.

The parameter D1 is used to delay the switch action. The setting range is 0.0-100.0 seconds. This parameter is valid for the switch action and the switch reset.

Switch 2 controls the parameters :A2, B2 and D2

Corresponding menu: **r2R r2E r2d**

These 3 parameters are used for the control setting of switch 2; the exact meaning is the same as switch 1. Please refer to "switch 1 control parameters".

Unit selection

Corresponding menu: **E In**

Set range 1-3, corresponding to Pa, mmH2O and mbar three units.

Notes: Users are advised to select the unit first when setting the parameters. This will make the parameters intuitively and easily understandable when setting the switch control points and ranges. Because all the parameters related to the measured values, their actual quantities depend on the unit selection.

Measuring range

Corresponding menu: **NR NE**

The former sets the starting point of range and the latter sets the cut-off point. The starting point and the ending point of the range correspond to the start and stop of the output signal. The measuring range cannot exceed the intrinsic range of product and the minimum range cannot be less than 1/4 of the intrinsic range. The range can be set to the forward mode (start>off) or negative mode (start>off). The difference is that the direction of output signal increment is opposite, the former increases along with the measurement value, the output signal increased; the latter is just the opposite.

Notes: The starting and ending of the output signal is fixed and cannot be changed.

Display return to zero

Corresponding menu: **nP**

Set a specified value, when the absolute value of the measured value is less than the specified value, the display output is always 0. The maximum setting value of this parameter is 1/4 of the measuring range. When users input the parameter value, it can be positive or negative, but at the time of saving the final parameter, it can be converted to positive. This parameter only affects the display output and has no effect on the signal output and switch control.

Deviation corrections

Corresponding menu: **oFI**

If the measurement result shows a fixed deviation due to the installation position or other reasons, a deviation correction parameter can be set to correct the deviation. The setting range is $\pm 1/4$ of the measurement range. For example, in zero state, the measurement shows 5Pa then set this parameter to -5Pa and the measurement output is 0. This parameter has effect on the display output, signal output and the switch control.

Output mode

Corresponding menu: **F**

The signal output mode is specified by setting the range of 1~2. If the setting is 1, the signal output can output in a linear relationship; if the setting is 2, it can output in a square root relationship.

Output limit(minimum and maximum output)

Corresponding menu: **oG1 oG2**

These two parameters are used to limit the range of the output signal, the first menu sets the minimum value of the signal output, and the second menu sets the maximum value. For current output products, the minimum value can be set to 0.0mA, and the maximum value can be set to 22.0mA; for voltage output products, the minimum can be set to 0.0V, the maximum can be set to 12.0V.

Debugging and setting

Note: Intrinsically safe products are limited by the circuit, which can guarantee the maximum output $\geq 21\text{mA}$

Error output

Corresponding menu: **oEr**

Set a specific signal value and when the device detects some internal error, such value can be output. The output value cannot exceed the output limit described in the previous section. The error output is always valid, even if it is set to 0.00.

Note: the device can only check a limit number of errors. The main errors: sensor signal abnormality, sample value is at the boundary value; internal calculation overflow due to the parameter error or other reason, or the result value exceed the display range. When an error condition is detected, the specific error signal value will be outputted and the display will also output an "**E-r**" prompt.

Password setting

Corresponding menu: **-P-**

The setting range is 0~999, the setting value indicates the password protection is enabled. After enabled the password protection, you need to enter the correct password when you enter the menu every time.

Password Input

Corresponding menu: **PAS**

If the password setting is valid (not 0), the menu is first displayed and the user is required to enter a password in order to proceed from the general display status by pressing mode/enter key to the menu setting state.

Reply default

Corresponding menu: **rES**

There is no setting value of this menu, when it is displayed, press mode/enter key, the device will load the default parameters immediately and returns to this menu. When the menu function executed, the internal parameters have been loaded into the default values although the display interface will not change. The user can check the changes of each menu item by pressing up/down key.

Note: the menu implementation is only loaded into the default parameters of the buffer zone, in order to save these parameters, you must perform a confirm operation, details please refer to «Confirm modification and exit»

Confirm modification and exit

Corresponding menu: **oE**

The implementation of the menu will check the correctness of the parameter settings, if the check is passed, the device will save the parameters and return to the normal display status. If the check fails, it will automatically go to the menu item that was set incorrectly.

Cancel the modification and exit

Corresponding menu: **ESC**

The implementation of the menu can exit the setup operation directly, return to the general display state and will not save any parameter modifications.

Product maintenance	
<p>If you have any problem in installation and operation, please be free to contact our company on time and do not open to maintain without any reference. The connection must strictly follow the "Wiring diagram" in case the damage of the products.</p> <p>Please do not impact and knock in case of the damage of the product and affect the performance. It is recommended to check 0 point regularly and set correction deviation by parameter to reduce the measurement error.</p>	