

### **Product introduction**

### Description

# Monosilicon electronic pressure switch

The new generation of sensors was developed in close coordination with the users. Its modern and userfriendly design stands out. High overload protection and best accuracy. PB200 is a pressure sensor with a pressure switch to safely and absolutely measure and monitor gauge pressures. It is highly stable and has a function check and onsite information due to its OLED and digital display. It can be rotated up to 350° if placed on the upper part of the house, also the display contents can be rotated up and down.



### Main parameters

Pressure types	Gauge pressure
Measuring range	2kPa-40MPa, please refer to the ordering information chapter
Output signal	4-20mA, 1-5VDC, PNP or NPN output, customer
Reference accuracy	±0.5%URL, ±0.2%URL option

### Measuring medium

The fluids which compatible with wetted parts

### Field of application

Pressure, level measurement

### Approvals

CE



# Technical Specification

### Measuring range and limit

Nominal value	Smallest calibratable span	Lower range limit (LRL)	Upper range limit (URL)	Overload limit
40kPa	2kPa	-40kPa	40kPa	1MPa
250kPa	12.5kPa	-100kPa	250kPa	4MPa
1MPa	50kPa	-100kPa	1MPa	6MPa
3MPa	150kPa	-0.1MPa	3MPa	15MPa
10MPa	500kPa	-0.1MPa	10MPa	20MPa
40MPa	5MPa	-0.1MPa	40MPa	80MPa

Above measurement range can be replaced by kg/cm2, MPa and kPa units. Provide other measuring range according to requirements. Adjust requirements: lower range value (LRV) and upper range value (URV) can be adjusted within the scope of the upper and lower range limit, smallest calibratable spansel URV-LRV  $| \le$  upper range limit

#### Standard specifications and reference conditions

Test standard: IEC60770; Zero based-calibration span, Linear output, Silicon oil filling, 316L stainless steeled diaphragm.

#### Performance specifications

The overall performance including but not limited to reference accuracy ], [environment temperature effects] and other comprehensive error

Typical accuracy: ±0.5%URL

Stability: ±0.2% URL/ 5 years

#### Reference accuracy

Including calibratio	linearity, hystere n temperature: 2	esis and repeata 0°C ± 5°C	bility.
Linear	TD ≤10(Note 1)	±0.5%URL	Nominal value:
accuracy	10 <td≤20< td=""><td>±0.5TD% URL</td><td>1MPa, 3MPa 10MPa, 40MPa</td></td≤20<>	±0.5TD% URL	1MPa, 3MPa 10MPa, 40MPa
Note 1: TD is Turn down, TD=URL/ URV-LRV			

### Power supply effects

Zero and span change should not be more than  $\pm$  0.005% URL/V

### Mounting position effects

Apply to any position. Install error less than 400Pa, which can be corrected by PV=0 reset.

### Vibration effects

According to IEC61298-3 tests, <0.1% URL

### Output signal

Signal	Туре	Output
4-20mA	Linearity	Three wire
PNP or NPN	Non-Linearity	Three wire
0-5VDC	Linearity	Three wire
4-20mA+1PNP or NPN	/	Four wire
4-20mA+2PNP or NPN	/	Five wire

### Ambient temperature effects(Typical)

Within the range -20-80 °C total impact  $\pm 0.2\%$  span/10k

### Insulation resistance

≥20M Ω@, 100VDC



### Technical Specifications

### Damping time

Startup after power off : ≤3S

Normal services after data recovery:≤10S

## Weight

Net weight: about 1 kg ( without mounting bracket and process connection adaptor )

# Environment condition

Items	Operational condition
Working temperature	-20-85℃
Storage temperature	-40-85°C
Media temperature	Sensor with silicon oil filling: -40- 120℃
Working humidity	0-95%RH@40℃
Protection class	IP67

### **Technical Specifications**

Signal output	4-20mA	1-5VDC	PNP/NPN
Power supply voltage	12-32VDC	12-32VDC	12-32VDC
Electric current	≤60mA	≤41mA	≤45mA
Load resistance( $\Omega$ )	<(U-12)/0.06	≥5k, recommend 100k	/
Transmission distance	<1000m	<5m	/
Power consumption	≤1.44W(4-20mA+ transistor+ OLED display @24VDC)	≤ 1.44mW(0.5-4.5VDC + transistor + OLED display @24VDC)	≤1.08W(RS485+ transistor + OLED display @24VDC)
*The load current value	e is $\leq$ 300mA for 1 way PNP or N	IPN	

## EMC environment(only for current signal output)

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NO.	Test items	Basic standards	Test conditions	Performance level
1	Radiated interference	CISPR22	30MHz-1000MHz	ОК
2	Conducted interference (DC power port)	CISPR22	0.15MHz-30MHz	ок
3	Electrostatic discharge immunity test (ESD)	IEC61000-4-2	4kV(Contact),8kV(Air)	B(Note2)
4	Immunity to radio frequency EM-fields	IEC61000-4-3	10V/m(80MHz-1GHz)	A(Note1)
5	Power frequency magnetic field Immunity test	IEC61000-4-8	30A/m	A(Note1)
6	Electrical fast transient / Burst Immunity Test	IEC61000-4-4	2kV(5/50ns,100kHz)	B(Note2)
7	Surge immunity requirements	IEC61000-4-5	1kV(Line to line) 2kV(Line to ground) (1.2us/50us)	B(Note2)
8	Immunity to conducted disturbances induced by radio frequency fields	IEC61000-4-6	3V(150kHz-80MHz)	A(Note1)
(Not (Not	te 1)Performance level A: The preformance w te 2)Performance level B: Temporary reducti	ithin the limits of normal techr on or loss of functionality or p	nical specifications. reformance, it can restore itsel	f. The actual

operating conditions, storage and data will not be changed.



### Menu functio

# Transmission module type

Output signal	Local control	Remote control
4-20mA	OLED/3 buttons on body	-

# LED display unit

Display mode	Details
Pressure & Unit	Two-row display: pressure value and unit
XX.X&P&Unit	Three-row display: percentage, pressure value and unit
SPn&P&RPn	Three-row display: SPn, pressure value and RPn

# Unit

Unit	Definition
kPa	Kilopascal
MPa	Megapascals
bar	Bar
psi	Pounds per square inch
mmHg	Millimetre(s) of mercury@0°C
mmH2O	Millimeter of water@4°C
mH2O	Meter of water@4°C
inH2O	Inches of water@4°C
ftH2O	Feet of water@4°C
inHg	Inches of mercury@0°C
mHg	Meter mercury column@0°C
TORR	Torr
mbar	Millibar
g/cm2	Gram per square centimeter
kg/cm2	Kilogram per square centimeter
Ра	PA
АТМ	Standard atmospheric pressure
mm	Millimeter(Note1)
m	Meter(Note1)
Note1: leng	gth unit need mark medium density

# Measuring menu set

Mark	State
URV	Upper range value, 20mA
LRV	Lower range value, 4mA

# Analog output type

Parameters	Output type
mA LINER	Linearity

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## Alarm signal

Parameter	Description
AOLC	When too small pressure lead to output current < AOLC setting value, display Out <aolc< td=""></aolc<>
АОНС	When too large pressure lead to output current > AOHC setting value, display Out>AOHC

## Fix output

Parameter	Fix output value	
FIX/C NO	None	
3.8000	3.8000mA	
4.0000	4.0000mA	
8.0000	8.0000mA	
12.000	12.000mA	
16.000	16.000mA	
20.000	20.000mA	
20.800	20.800mA	

# Quick menu

Parameter	Instruction
PV=0	Set current analog output to zero value.(gauge pressure, differential pressure)
Zero adjustment	4mA re-range with pressure
Span adjustment	20mA re-range with pressure
Restore factory setting	Restore backup data when error



### Product selection instruction

Code	Position	Instruction
1	Isolated	SUS316L
2	diaphragm material	Hastelloy C
3	Isolated filling fluid	Silicon oil, process temperature: -45-205°C
4		Fluorocarbon oil, process temperature: -45-160°C
5	Sensor seal	Stainless steel welding seal
6		FKM

## Isolated diaphragm



## Electrical connection select instruction

Code	Description
1	Aviation plug, M12*1, 5 pins, IP67
2	Aviation plug, M12*1, 4 pins, IP67

# Aviation plug , M12\*1 (5 pins)



## Aviation plug , M12\*1 (4 pins)



## Aviation plug , M12\*1 (5 pins)



1	2	5	4	5
Power+	Transistor output 2	Power-	Transistor output 1	*Signal-
			*Signal type:	4-20mA, 1-5VDC

# Aviation plug , M12\*1 (4 pins)



1	2	3	4
Power+	Transistor output 2	Power-	Transistor output 1
Power+	Transistor output 2	Power-	Transistor output 1
Power+		Power-	
Power+	*Signal	Power-	Transistor output 1

\*Signal type: 4-20mA, 1-5VDC



## Product drawing and dimension

# PB200 drawing and dimension (unit: mm)



## Process connection(M) (unit: mm)



### Process connection(G) (unit: mm)





### Product drawing and dimension

## Aviation female plug elbow (4 pins) (Z2) (unit: mm)



Aviation female plug elbow (5 pins) (Z22) (unit: mm)



# Aviation female plug straighter (4 pins) (Z1) (unit: mm)



### Aviation female plug straighter (5 pins) (Z11) (unit: mm)

