BICCNS®

PK66X-HT

High-Purity High-Temperature Pressure Sensor

Operation Manual | Version: 2026A08 | Suzhou Baicon Sensor Technology Co,. LTD

The high-temperature pressure sensor separates the sensing diaphragm from the amplifier, enabling reliable measurement of high-temperature media. It provides standard analog output and optional switching control, with adjustable switching points. Ultrapure wetted materials and semiconductor-grade process connections minimize particle and metal-ion contamination, making it suitable for monitoring high-temperature gases, high-purity chemicals, and furnace tubes.

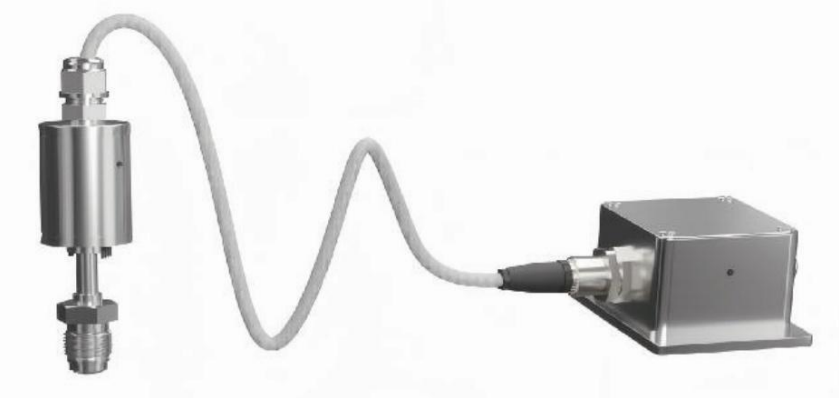


Figure: PK66X-HT Structural Diagram & Dimensions

1 Document Information

1.1 Document Purpose

The document provides all necessary information from receipt of the product to initial commissioning.

1.2 Information Icons

1.2.1 Safety Icons

Icons	Description
	**Danger!** Hazard warning icon. Neglecting this warning may result in serious or fatal injury.
	**Warning!** Hazard warning icon. Ignoring this warning may result in serious or fatal injury.
	**Caution!** Hazard warning icon. Ignoring this warning may result in minor or moderate injury.
	**Note!** Icon indicating operational or other important information. No personal injury is expected.

1.2.2 Electrical Icons

Icon	Description	Icon	Description
	**Protective Ground Connection** Ensure that this terminal is securely and reliably grounded before making any subsequent electrical connections.		**Ground Connection** The operator should assume that this grounding terminal is already properly connected to the grounding system.

2 Technical Specifications

- Measurement Range:-14.7～6000Psi
- Accuracy：±0.5%FS （≤160psi：±0.75%）
- Medium Temperature：-40.....150/200/250°C
- Ambient Temperature：-20.....85°C（Transmitter section temperature）
- Output Signal：0-5V/0-10V/1-5V/4-20mA
- Voltage：24VDC(10-30VDC)
- Load Capacity：0-1000Ω
- Reliability: Typical:0.25%FS/Yr

3 Intended Use

3.1 Applications

The PFA Pressure Transmitter is used for measuring and controlling absolute and gauge pressures of gases and liquids. The wetted parts of the instrument are made of materials resistant to media corrosion.

3.2 Improper Use

The manufacturer is not responsible for any damage resulting from improper use or use for purposes other than the intended application.

3.3 Other Risks

During operation, the housing temperature may approach the process temperature.

> **Risk of contact burns!**
> When measuring high-temperature fluids, ensure protective measures are taken to prevent contact burns.

3.4 Workplace Safety

During instrument operation:

- Comply with federal/national regulations and use the required personal protective equipment (PPE).
- Disconnect the power supply before performing any wiring on the instrument.

3.5 Operational Safety

> **Risk of personal injury!**
> - Operate the device only under proper technical and fail-safe conditions.
> - The operator is responsible for ensuring the device is operated under interference-free conditions.

3.6 Modification of Equipment

- Unauthorized modifications to the device are prohibited, as they may result in unforeseen hazards.

3.7 Hazardous Areas

- When using the device in hazardous areas, measures must be taken to prevent injury to personnel or damage to equipment (e.g., explosion protection, pressure equipment safety).
- Refer to the nameplate to check and confirm whether the ordered device is approved for use in hazardous areas.

3.8 Product Safety

- The measurement instrument is designed based on engineering best practices and complies with the most advanced and stringent safety requirements. After factory testing, it can be used safely.

4 Storage and Transport

4.1 Storage Conditions

- Store the device in its original packaging.
- Keep the measurement instrument in a clean, dry environment and protect it against impact damage (EN 837-2).
- Storage temperature range: –40…+85 ℃

4.2 Transporting the Product to the Measurement Point

> **Improper Transport!**
>
> - Improper handling may damage the housing and diaphragm, and poses a risk of personal injury!
> - Transport the measurement device to the measurement point using the original packaging or via the process connection.

5 Installation

5.1 Installation Conditions

- Ensure that no moisture enters the housing during installation, operation, or wiring of the instrument.
- Insert wiring into the transmitter in the correct orientation for communication.
- Do not use hard and/or sharp objects to clean or touch the process isolation diaphragm.
- Do not remove the protective cover on the process isolation diaphragm before installation.
- Always securely tighten the cable entry.
- Install cables and connectors facing downward to prevent moisture ingress.
- Take measures to protect the housing against impact.

5.2 Influence of Installation Position

- Any installation orientation is allowed. However, the installation direction may cause zero-point drift, meaning the measured value may not display 0 in an empty or partially filled vessel. Vertical installation is recommended. Perform zero adjustment after installation.

5.3 Installation Position

5.3.1 Pressure Measurement

- **Gas Pressure Measurement:** For instruments with a shut-off valve, install the device above the pressure tap point so that condensate can flow back into the process.
- **Liquid Pressure Measurement:** When installing instruments with a shut-off valve, ensure the instrument is installed at the same height as the pressure tap point.

5.3.2 Level Measurement

- Always install the instrument below the lowest measurement point.

Do not install the instrument at the following locations:

- Filling area
- Tank outlet
- Pump suction area
- Areas affected by pressure surges caused by agitation or stirring.

5.4 Post-installation Check

- Check whether the instrument is intact and free of damage (visual inspection).
- Check whether the instrument meets the technical specifications required for the measurement point, for example: Process temperature, Process pressure, Ambient temperature range and Measurement range.
- Check whether the measurement point identification and labels are correct (visual inspection).
- Check whether adequate protective measures have been taken to prevent the instrument from exposure to corrosive gases.
- Check whether all mounting screws are securely tightened.

6 Electrical Connections

6.1 Connecting the Measurement Unit

6.1.1 Terminal Assignment



Risk of personal injury due to uncontrolled process start!

- Disconnect the power supply before wiring the instrument.
- Ensure that the process cannot start unexpectedly.



Risk of Electric Shock! Explosion hazard!

- Ensure the instrument is not energized during wiring.
- Disconnect the power supply before wiring the instrument.



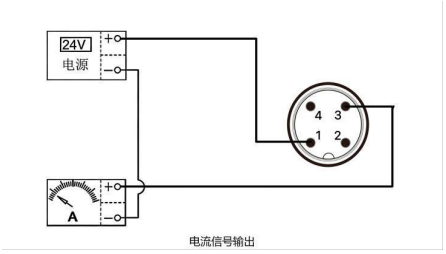
Improper Connection May Compromise Electrical Safety!

- According to IEC/EN61010, a dedicated circuit protection device must be installed.
- A 500 mA slow-blow fuse must be installed during instrument operation.
- When using the instrument in hazardous areas, installation must comply with relevant national standards and regulations, the “Safety Guide,” or the “Installation/Control Diagram.”
- Explosion-proof parameters are documented separately and available on request. The explosion-proof manual serves as the standard document for all certified instruments used in hazardous areas.
- Built-in reverse polarity protection circuit.

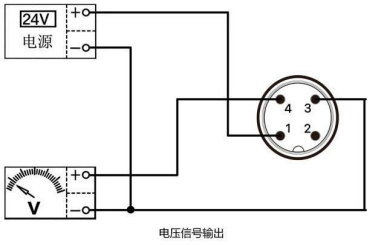
Follow these steps for instrument wiring:

- Verify that the supply voltage matches the nameplate specifications.
- Wire the instrument according to the diagram below, then switch on the power supply.
- Power on the device.
- For cable-connected instruments: Do not block the atmospheric compensation tube. Prevent water/condensation from entering the reference vent tube.

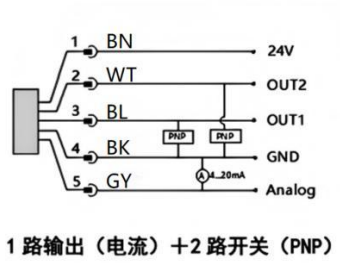
Wiring Option:

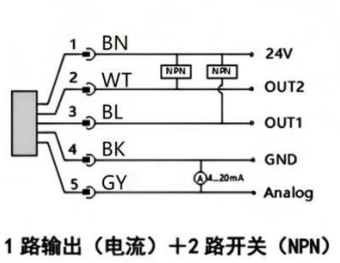


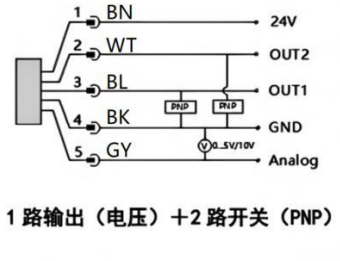
Current Output



Voltage Output







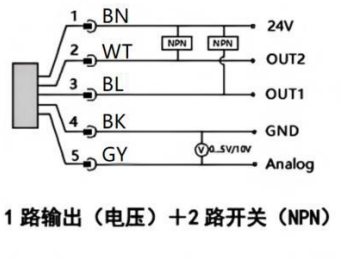


Figure: Complete Electrical Wiring Schematics

6.1.2 Supply Voltage

Risk of Electric Shock! Explosion Hazard!

- When used in hazardous areas, the instrument must be installed in accordance with relevant national standards, regulations, and the “Safety Guide.”
- Explosion-proof parameters are documented separately and available on request. The explosion-proof manual (Ex) serves as the standard document for all certified instruments used in hazardous areas.

Model	Supply Voltage
PK66X-HT（4~20mA）	10...30V DC

6.2 Connection Requirements

6.2.1 Cable Specifications

M12 4-core cable / M12 5-core cable (switching output)

6.3 Connection Parameters

6.3.1 Load (For 4…20 mA Instruments)

Do not exceed the maximum load RL (including cable resistance) to ensure that the terminal voltage of the two-wire instrument remains sufficiently high. The allowable load depends on the supply voltage UB.

6.3.2 Load Impedance (For 0~10 V Instruments)

The load impedance must be ≥1 kΩ.

7 Operation Instructions

7.1 Switching Function

7.1.1 Hysteresis Function

When the process pressure P exceeds or falls below the set switching limits (SP1/2, RP1/2), the switch state will change. The following switching functions can be selected:

- Hysteresis Function / Normally Open: [OUT1/2] = [Hno]
- Hysteresis Function / Normally Closed: [OUT1/2] = [Hnc]

The hysteresis width can be set using the difference between SP1/2 and RP1/2.

- SP1/2 = upper limit,
- RP1/2 = lower limit.

(Note: The pressure value set for SP1/2 must be higher than the pressure value set for RP1/2.)

The figure below shows an example of the output:

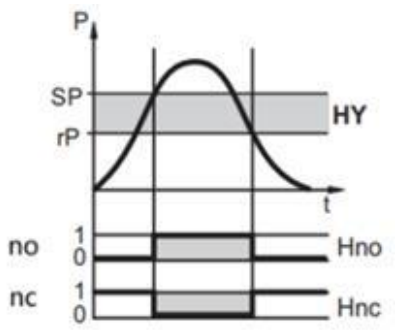


Figure 7-1: Hysteresis Switching Mode Characteristic Curve

7.1.2 Window Function

If the process pressure P is higher or lower than the set switching limits (FH1/2, FL1/2), the switching state will change. The following switching functions can be selected:

- Window function / Normally Open: [OUT1/2] = [Fno]
- Window function / Normally Closed: [OUT1/2] = [Fnc]

The window width can be set by the difference between FH1/2 and FL1/2.

- FH1/2 = Upper limit value
- FL1/2 = Lower limit value

(Note: The pressure value set for FH1/2 must be greater than that set for FL1/2.)

The diagram below shows an example of the output:

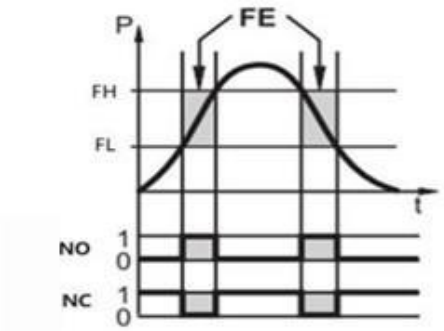


Figure 7-2: Window Function Switching Mode Characteristic Curve

- 0 indicates no signal at the switching output, with voltage output close to 0 V.
- 1 indicates a high-level signal at the switching output, with voltage output close to 24 V.

7.1.3 Operation Instructions

> **注意**
>
> **Starting an uncontrolled process may cause personal injury.**
>
> - Ensure that the uncontrolled process in the system is not operating.
> - After powering on the instrument, if the current or voltage output is out of range, use a screwdriver to make fine adjustments at the instrument's zero-adjustment button.
> - If the instrument drifts after operating for some time, use a screwdriver to make fine adjustments at the zero-adjustment button.

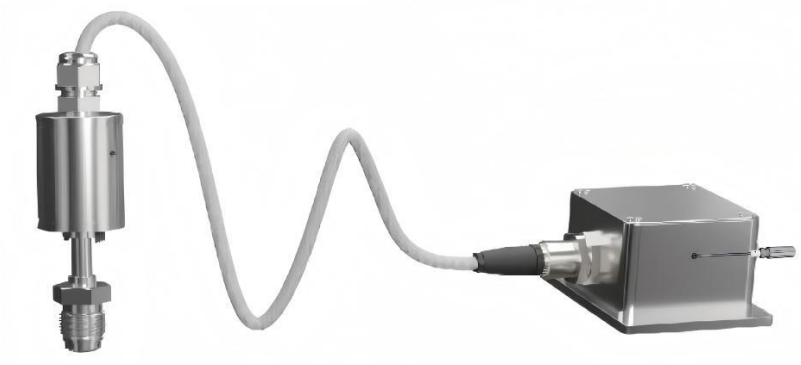


Figure 7-3: Sensor Architecture & Zero-Adjustment Position

7.2 Menu

7.2.1 Main Menu Structure

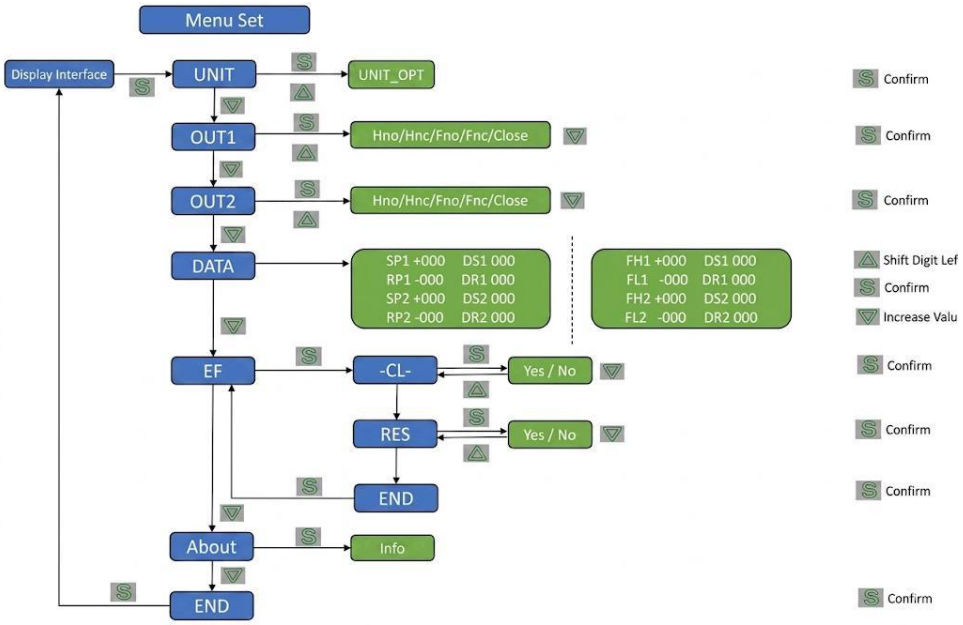


Figure 7-4: PK66X-HT Local Display Main Menu Navigation Tree & Configuration Workflow

7.3.2 Menu Description

7.3.2.1 First-Level Menu Description

Menu Item	Description / Options
OUT1	**OUT1 Function Selection** Hno：Hysteresis (NO) Hnc：Hysteresis (NC) Fno：Window (NO) Fnc：Window (NC)
OUT2	**OUT2 Function Selection** Hno：Hysteresis (NO) Hnc：Hysteresis(NC) Fno：Window(NO) Fnc：Window(NC)
DATA	**Hysteresis mode**: Input values for the upper switching point (SP) and lower switching point (RP). **Window mode**: Input values for the upper switching point (FH) and lower switching point (FL). **DS**: Delay time for the upper level **DR**: Delay time for the lower level
EF	Extended functions (Enable Level 2 menu)
About	Version and brand information
END	Confirm and return to the display screen

7.3.2.2 Second-Level Menu Description

Menu Item	Description
-CL-	Clear (Zero reset)
RES	Restore factory settings
END	Confirm and return to the display screen

8 Precautions

- **1)** All delivered products come with a Certificate of Conformity and an instruction manual. Please carefully check the technical specifications to avoid errors.
- **2)** Tighten the thread slowly and ensure proper sealing. Do not apply torque directly to the transmitter housing; apply it only to the hexagon of the pressure port.
- **3)** Wiring must be carried out strictly according to the instructions provided in this manual.
- **4)** Do not disassemble, collide, drop, forcefully shake, or use sharp tools to probe the pressure ports, as these actions may damage the product housing or internal circuits.
- **5)** The instrument operates immediately after power-on, but the output stabilizes after a 30-minute warm-up.
- **6)** If any abnormality is detected during use, switch off the power, stop operation, and inspect the instrument, or contact our technical department.
- **7)** During transport and storage, return the product to its original packaging and store it in a cool, dry, and ventilated warehouse.
- **8)** Free repair is provided within 12 months for product quality issues (excluding damage caused by human error, improper installation, or incorrect selection).
- **9)** All products have a normal service life. Engineers should design backup solutions when using this product to prevent unnecessary losses in case of failure.
- **10)** For any other issues, please contact our company or local distributors.
- **11)** The company reserves the right of final interpretation.

Suzhou Baicon Sensor Technology Co., LTD (BICCNS)
Business Address:
Plant 402, Building 1, 3E Industrial Park, 18 Chunyao Road, Xiangcheng District, 215127 Suzhou, China
Website: https://www.biccns.com/