

# PCS101 Adjustable High Pressure Switches

## Features

- 1 million mechanical life and high reliability
- Short action time and high sensitivity
- High pressure resistance and high safety
- With metal shell design, the switch is more resistant to vibration and external impact
- Pressure value can be adjusted
- More shell types/pressure range/thread types/diaphragm types can be selected, which is suitable for more use occasions and has high adaptability

## Applications

- Construction machinery, such as excavators
- Forklift truck (oil burning type with hydraulic system)
- Hydraulic system, such as hydraulic lubrication pump and hydraulic pump station

### Notes:

- 1 During the measurement, the probe should be in the thermal equilibrium with the measured medium.
- 2 The insertion depth should be reasonable.
- 3 Please read the Instruction Manual of the product carefully before installation and check the relevant information of the product.
- 4 Strictly follow the wiring method for wiring, otherwise it may cause product damage or other potential faults.



## Product overview

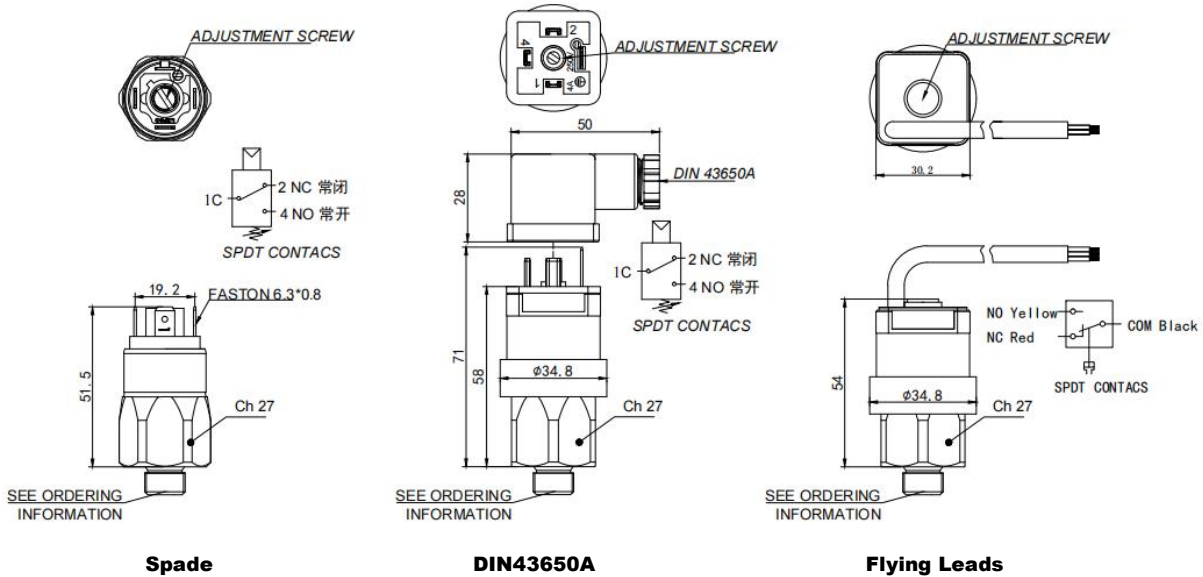
In the industrial and automotive fields, a certain pressure value is usually set for the equipment when the pressure reaches this value, the system will send an electronic signal to start the mechanical equipment which triggers a warning (such as a leak of equipment, an alarm, etc.). this is the plunger type pressure switch. The max pressure can not be exceeded to 600 bar.

### Notes:

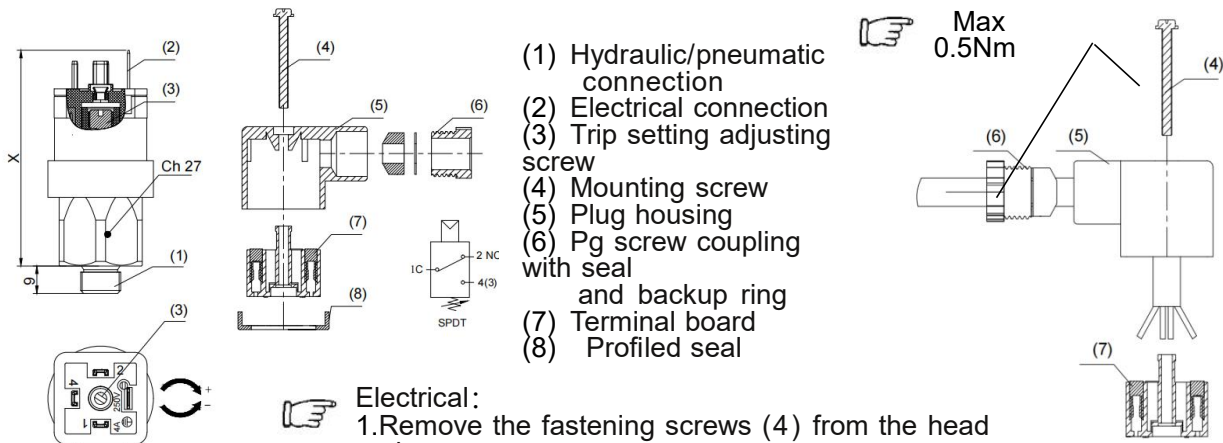
- 1 Do not misuse documentation.
- 2 The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- 3 Complete installation, operation, and maintenance information is provided in the instructions of the product.
- 4 Misuse of the product may cause danger or personal injury.

## Performance Parameters

| Model                     | Adjustment Range   |         | Avg. Differential |        |
|---------------------------|--|---------|-------------------|--------|
|                           | PSI  | Bar     | PSI               | Bar    |
| 1                         | 450-1450   | 30-100  | 72.5 - 290        | 5 -20  |
| 2                         | 725-2175   | 50-150  | 145-435           | 10-30  |
| 3                         | 1450-2900  | 100-200 | 218 - 580         | 15 -40 |
| Electrical                | Standard:4A,125V/250VAC<br>4A,12/42VDC<br>Gold contacts may be required for less than 12 VDC and 20 milliamps                                  |         |                   |        |
| Wetted material           | Diaphragm: Buna-N (standard)<br>(optional EPDM,FKM, VITON®<br>HNBR)<br>Housing:<br>Zinc-plated steel, 304 Stainless steel,316L Stainless steel |         |                   |        |
| Protection                | Exposed Terminals -IP00<br>DIN 43650A-IP65<br>Flying Leads, M12, Deutsch Integral - IP67   |         |                   |        |
| Repeatability             | $\pm 2\%$ of full set point range at 21°C<br>Ambient Temperature   |         |                   |        |
| Switch type               | Snap Action  |         |                   |        |
| Mechanical life           | 100,000 cycles   |         |                   |        |
| Temperature range         | BUNA-N: -30°C~110°C<br>EPDM: -40-130°C<br>FKM: -10-120°C<br>VITON®: -40-130°C<br>HNBR: -40°C~130°C   |         |                   |        |
| Maximum Overload pressure | 6500PSI(450Bar)  |         |                   |        |
| Weight                    | 0.14 kg  |         |                   |        |



Ordering Information



Electrical:

1. Remove the fastening screws (4) from the head end Terminal board (7)
2. Connect the cable (max . lead cross-section 1,5 mm<sup>2</sup>) to the screw terminals provided
3. Reinstall the terminal board (7) in the plug housing (5) . Install the fastening screw (4) . Install the connector on the pressure switch and tighten the fastening screw (4) .

## Appendix 1: Definitions and Terms

### DEFINITIONS AND TERMINOLOGY

**ACCURACY, (REPEATABILITY)** - Accuracy is the maximum allowable set point deviation of a single pressure or temperature switch under one given set of environmental and operational conditions.

**ACTUATION AND DEACTUATION POINT** - The actuation point (sometimes called set point) is the exact point at which the electrical circuit controlled by the switching element is opened (or closed) on increasing pressure or temperature. The deactuation point is the opposite at which the electrical circuit is closed (or opened) on decreasing pressure or temperature.

**DEAD BAND** - The dead band sometimes referred to as “differential” or “hysteresis” is the change in pressure between actuation and deactuation set points.

**PRESSURE SWITCH** - An instrument that upon the increase or decrease of a pressure or vacuum, opens or closes one or more electrical switching elements at a predetermined actuation point (setting).

**PRESSURE SENSING ELEMENT** - That portion of pressure switch that is in contact with and moves as a result of a change in pressure of the medium. The most common type of pressure sensing elements are diaphragms, accordion bellows, bourdon tubes, and pistons.

**SINGLE POLE DOUBLE THROW (SPDT) SWITCHING ELEMENT** - A SPDT switching element has one normally open, one normally closed and one common terminal. Three terminals mean that the switch can be wired with the circuit either normally open (N/O) or normally closed (N/C).

**NORMALLY CLOSED SWITCHING ELEMENT (NC)** - Is one in which the terminals are wired so that current can flow through the switching element until pressure is applied to open the electrical circuit.

**NORMALLY OPEN SWITCHING ELEMENT (NO)** - Is one in which the terminals are wired so that no current can flow through the switching element until the pressure is applied to close the electrical circuit.

**PRESSURE, PROOF** - Proof Pressure is the maximum pressure which can be applied to any switch without causing permanent degradation.

### Circuit Definitions

#### Form A - SPST - NO

Single Pole - Single Throw      Normally Open

#### Form B - SPST - NC

Single Pole - Single Throw      Normally Closed

#### Form C – SPDT

Single Pole - Double Throw

### Standard Electrical Circuit

| Wire Color | DIN 43650 Number | Circuit   |
|------------|------------------|-----------|
| Black      | 1                | Common    |
| Green      | 2                | N. Closed |
| Red        | 3                | N. Open   |

Wotian Pressure Switches are sealed, vibration resistant and ruggedly built to provide a reliable protection for automatic control of equipment and processes. They are designed for direct or remote mounting and offer a quality product at a competitive price.

**Microswitch** - Each Wotian PCS71 pressure switch contains a precision, snap-action microswitch which meets or exceeds industrial standards for reliability; electrical capacity and long life.

The snap action micro switch meets underwriters and CSA specifications for 4 amp rating dependent upon specification type - consult factory for additional data.

**Setting** - The set point of each switch is preset at the factory as follows:

- Field adjustable series - bottom of range
- Factory set series - at the desired set point

The switches can be ordered for operation with either rising or falling temperature, vacuum or pressure. Reset of the microswitch is automatic and depends upon the dead band or differential of the particular model.

**Switch Protection** - Standard switches offer excellent protection and long life in most applications. They are also sealed for weatherproof protection. The corrosion-resistant materials in the wetted areas and the standard nitrile diaphragm are suitable for most media. Where required the switches are available with VITON®, FKM, EPDM or Low Temperature Nitrile diaphragms and, in some cases, optional steel, brass or stainless steel housings and wetted areas.

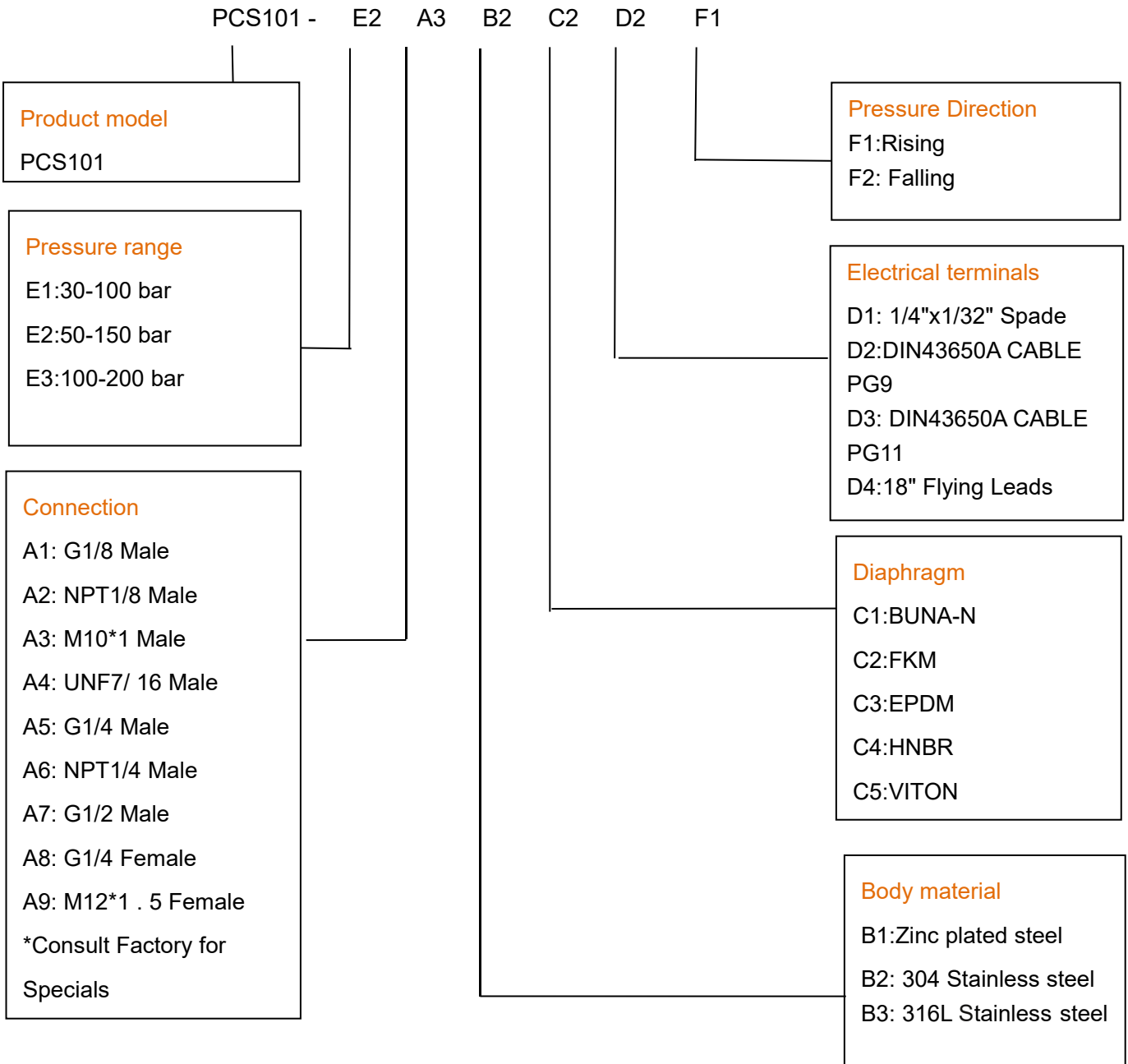
**Mechanism** - Where the pressure switch is subject to higher pressure, either dynamic or static, of over 700 psi, the diaphragm operating mechanism includes an O-ring cushion which absorbs the slight operation motion required while preventing extrusion of the diaphragm material into the piston-to-cylinder clearance.

**Gold Contacts** - May be required for applications where less than 12VDC and 20 Milliamps.

## Appendix 2: Material Compatibility

| Media                      | Buna | EPDM | Viton | Media                   | Buna | EPDM | Viton |
|----------------------------|------|------|-------|-------------------------|------|------|-------|
| Acetic Acid                |      | *    |       | Hydraulic Oil(PET Base) | *    |      |       |
| Acetone                    |      | *    |       | Hydrocarbons            | *    |      |       |
| Acetylene                  | *    |      |       | Hydrogen                | *    |      |       |
| Air                        | *    |      |       | Hydrogen Sulphide       |      | *    |       |
| Alcohols                   | *    |      |       | Isopropanol             |      | *    |       |
| Alkalies (Weak)            | *    |      |       | JP-3-6                  | *    |      |       |
| Alkalies (Strong)          |      | *    |       | Kerosene                | *    |      |       |
| Ammonia(Anhydrous)         | *    |      |       | LPG                     | *    |      |       |
| Ammonia(Hydroxide)         |      | *    |       | Lube Oil(PET Base)      | *    |      |       |
| Asphalt                    |      |      | *     | Methanol                | *    |      |       |
| Automotive Oils            | *    |      |       | MEK                     |      | *    |       |
| Beer                       | *    |      |       | Mineral Oil             | *    |      |       |
| Benzene                    |      |      | *     | Motor Oils              | *    |      |       |
| Boric Acid                 | *    |      |       | Naptha                  |      | *    |       |
| Brake Fluid                |      | *    |       | Natural Gas             | *    |      |       |
| Bunker Oil                 | *    |      |       | Nitric Acid             |      | *    |       |
| Butane                     | *    |      |       | Nitrogen                | *    |      |       |
| Butyl Cellosolve           |      | *    |       | Cleum Spirits           |      |      | *     |
| Carbon Dioxide             | *    |      |       | Oxygen                  | *    |      |       |
| Carbon Monoxide            | *    |      |       | Ozone                   |      | *    |       |
| Cellube                    |      | *    |       | Crude Oil               | *    |      |       |
| Chlorobenzene              |      |      | *     | Phosphoric Acid         |      |      | *     |
| Citric Acid                | *    |      |       | Propane                 | *    |      |       |
| Coke Oven Gas              |      |      | *     | Propanol                | *    |      |       |
| Coolant                    | *    |      |       | Pydraul                 |      | *    |       |
| Diesel Fuels               | *    |      |       | Shell Iris 902          | *    |      |       |
| Di-Ester Lube (MIL-L-7808) |      |      | *     | Silicone Greases        | *    |      |       |
| Dowtherm A&E               |      | *    |       | Silicone Oils           | *    |      |       |
| Ethanol                    | *    |      |       | Skydrol 500 & 7000      |      | *    |       |
| Ether                      |      | *    |       | Soap Solutions          | *    |      |       |
| Ethylene                   | *    |      |       | Steam Below 320°F       |      | *    |       |
| Ethylene Glycol            | *    |      |       | Stoddard Solvent        | *    |      |       |
| Freon 11,12,112,114        | *    |      |       | Sulfuric Acid           |      |      | *     |
| Freon 22                   |      | *    |       | Tolulene                |      |      | *     |
| Fyrquel                    |      | *    |       | Transmission Fluid      | *    |      |       |
| Fuel Oil                   | *    |      |       | Trisodium Phosphate     | *    |      |       |
| Gasoling                   | *    |      |       | Turpentine              | *    | *    |       |
| Glycerin                   | *    |      |       | Water to 220°F (104°C)  | *    |      |       |
| Helium                     | *    |      |       | Water to 302°F (150°C)  |      | *    |       |
| Hexane                     | *    |      |       |                         |      |      |       |

## How to order



### Example: PCS101-E2A3B2C2D2F1

The product model is PCS71, E2: pressure range 50-150 bar, A3: connection M10\*1 Male, B2: 304 stainless steel for body material, C2: FKM diaphragm, D2: DIN43650A CABLE PG9, F1: pressure direction rising.

Wotian reserves the right to make any change in this publication without notice. The information provided is believed to be accurate and reliable as of this product sheet.



## Contact us

Nanjing Wotian Technology Co.,Ltd.

Website: [www.wtsensor.com](http://www.wtsensor.com)

Add: 5 Wenyong Road, Binjiang Development Zone, Nanjing, 211161, China

E-mail: [dr@wtsensor.com](mailto:dr@wtsensor.com)