

# Compact pressure switch

## For industrial applications

### Model PSM01

WIKA data sheet PV 34.81

#### Applications

- Hydraulics
- Pneumatics
- Mobile working machines
- General machine building

#### Special features

- Setting ranges: 0.2 ... 2 bar [3 ... 30 psi] to 30 ... 320 bar [450 ... 4,600 psi] and -0.85 ... -0.15 bar [-25 inHg ... -5 inHg]
- Non-repeatability of the switch point:  $\leq 2\%$  of span
- Switching functions: Normally closed, normally open or change-over contact
- Media: Compressed air, neutral and self-lubricating fluids and neutral gases



Compact pressure switch, model PSM01

#### Description

Model PSM01 screw-in pressure switches in a diaphragm or piston design open or close a circuit, depending on whether the pressure is falling or rising. An adjustment screw enables easy and convenient on-site setting of the required switch point. Optionally, WIKA offers its customers the factory setting of the switch point.

The model PSM01 pressure switch is suitable for applications where compressed air, neutral and self-lubricating fluids as well as neutral gases are used.

This pressure switch features a good non-repeatability of the switch point of  $\leq 2\%$  of the span. The compact design is suitable for easy mounting with a socket wrench. The switch is interesting for both OEM customers and customers with low volumes.

## Setting ranges

Unit	Max. working pressure	Setting range	Non-repeatability	Measurement principle	
bar	20	-0.85 ... -0.15	±0.05	Diaphragm	
		60	0.2 ... 2		±0.04
			0.5 ... 8		±0.16
			1 ... 16		±0.32
	350	10 ... 30	±0.6	Piston	
		10 ... 80	±1.6		
		10 ... 120	±2.4		
		10 ... 160	±3.2		
		20 ... 200	±4		
		20 ... 250	±5		
30 ... 320		±6.4			
psi	300	-25 ... -5 inHg	±1.4 inHg	Diaphragm	
		870	3 ... 30		±0.6
			7 ... 115		±2.3
			15 ... 225		±4.5
	5,000	150 ... 425	±8.5	Piston	
		150 ... 1,150	±23		
		150 ... 1,700	±34		
		150 ... 2,300	±46		
		300 ... 2,900	±58		
		300 ... 3,600	±72		
		450 ... 4,600	±92		

The given setting ranges are also available in MPa.  
Other units and setting ranges on request

### Switch point setting

- No factory setting, adjustable
- Fixed setting, not adjustable
- Factory setting, adjustable

The main selection criterion for the pressure switch is the max. working pressure (see table "Setting ranges") which can be reached in the application.

From that follows the choice of the setting range in which the desired switch point must lie. The switch point should be in the range of 30 ... 70 % of the setting range end value. This enables an optimal repeatability and ease of setting of the switch point.

For the switch point setting "Fixed factory setting", the ordering information of max. working pressure (20 bar [300 psi], 60 bar [870 psi] or 350 bar [5,000 psi]), together with the desired switch point, is sufficient. With this ordering information, the pressure switch can be optimally designed, set and sealed with respect to non-repeatability and long service life. The selection of the setting range is not required with these variant.

### Switch contact

High-quality snap-action switch with self-cleaning, solid silver contacts (optionally gold-plated)

### Switching frequency

max. 1 Hz

### Service life per ISO 10771-1

> 10<sup>6</sup> load cycles

## Switching function

Selectable: Normally open, normally closed, change-over contact

Electrical connection	Normally open	Normally closed	Change-over contact
Blade terminal 6.3 x 0.8 (3-pin)	-	-	x
Circular connector M12 x 1 (4-pin)	-	-	x
Deutsch connector DT04-2P (2-pin)	x	x	-
Cable outlet	x	x	x

## Electrical rating

Utilization category <sup>1)</sup>	Voltage, current	
Resistive load AC-12, DC 12	AC 48 V, 2 A	DC 24 V, 2 A
Inductive load AC-14, DC 14	AC 48 V, 2 A	DC 24 V, 1 A
Min. switching power	25 mW with solid silver contacts	
Max. switching power	50 mW with gold-plated contacts (option)	

1) per DIN EN 60947-1

## Non-repeatability

Non-repeatability	Switch point setting
≤ 2 % of setting range end value	No factory setting, adjustable
	Factory setting, adjustable
≤ 4 % of set switch point	Fixed factory setting, not adjustable

## Switch hysteresis (fixed, not adjustable)

Measurement principle	Switch hysteresis (standard value)
Diaphragm (vacuum)	250 mbar
Diaphragm (gauge pressure)	0.1 bar [1.4 psi] + 5 ... 10 % of switch point Example: With a switch point of 3 bar [42 psi], the switch hysteresis is 0.25 ... 0.4 bar [3.5 ... 5.6 psi].
Piston	5 bar [70 psi] + 5 ... 10 % of switch point Example: With a switch point of 100 bar [1,500 psi], the switch hysteresis is 10 ... 15 bar [145 ... 220 psi].

## Operating conditions

### Permissible temperature ranges

Medium temperature	Sealing material
-20 ... +80 °C [-4 ... +176 °F]	NBR
0 ... 100 °C [32 ... 212 °F]	FKM
-40 ... +100 °C [-40 ... +248 °F]	EPDM
-40 ... +80 °C [-40 ... +176 °F]	TNBR
-40 ... +100 °C [-40 ... +248 °F]	FVMQ

### Permissible air humidity (per IEC 68-2-78)

≤ 67 % r. h. at 40 °C [104 °F] (in accordance with 4K4H per EN 60721-3-4)

### Vibration resistance (IEC 60068-2-6)

10 g (10 ... 2,000 Hz)

### Shock resistance (IEC 60068-2-27)

30 g

### Storage and transport temperature

-20 ... +80 °C [-4 ... +176 °F]

## Process connections

Thread	Process connection standard	Material of wetted parts
G 1/8 B	DIN EN ISO 228-1	Galvanised steel or stainless steel
G 1/4 B	DIN EN ISO 228-1	Galvanised steel or stainless steel
M10 x 1	DIN 13-5	Galvanised steel
7/16-20 UNF BOSS	SAE J514 E	Galvanised steel or stainless steel
1/8 NPT	ANSI/ASME B1.20.1	Galvanised steel or stainless steel
1/4 NPT	ANSI/ASME B1.20.1	Galvanised steel or stainless steel
R 1/8	ISO 7	Galvanised steel or stainless steel
R 1/4	ISO 7	Galvanised steel

Other process connection on request

## Electrical connection

Designation	Ingress protection <sup>1)</sup>	Wire cross-section	Cable Ø
Blade terminal 6.3 x 0.8 (3-pin)	IP00	-	-
Circular connector M12 x 1 (4-pin)	IP67	-	-
Deutsch DT04-2P (2-pin)	IP67	-	-
Cable outlet, 2-wire <sup>2)</sup>	IP67	2 x 0.75 mm <sup>2</sup> [1.16 x 10 <sup>-3</sup> in <sup>2</sup> ]	5.0 mm [0.2 in]
Cable outlet, 3-wire <sup>2)</sup>	IP67	3 x 0.5 mm <sup>2</sup> [7.75 x 10 <sup>-4</sup> in <sup>2</sup> ]	5.3 mm [0.21 in]

<sup>1)</sup> The stated ingress protection (per IEC/EN 60529) only applies when plugged in using mating connectors that have the appropriate ingress protection.

<sup>2)</sup> Cable lengths available in 0.5 m, 1 m and 2 m (1.5 ft, 2 ft or 6 ft), other cable lengths on request.


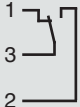
### Resistance to overvoltage

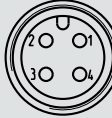
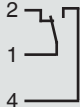
DC 40 V

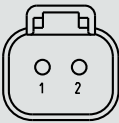

### Insulation voltage




DC 750 V

## Connection diagrams

Blade terminal 6.3 x 0.8 (3-pin)	
Change-over contact	
	<p>SPDT</p>  <p>1 = NC 2 = NO 3 = COM</p>

Circular connector M12 x 1 (4-pin)	
Change-over contact	
	<p>SPDT</p>  <p>1 = COM 2 = NC 4 = NO</p>

Deutsch DT04-2P (2-pin)	
Normally open/normally closed	
	<p>NO/NC</p>  <p>1 = NO or NC 2 = COM</p>

Cable outlet		
	Normally open/normally closed	Change-over contact
	<p>NO/NC</p>  <p>WH BK</p>	<p>SPDT</p>  <p>BU BK BN</p>

Legend

NC Normally closed  
NO Normally open  
COM Common contact

Colour coding per IEC 60757

WH White  
BK Black  
BN Brown  
BU Blue

## Materials

### Wetted parts

- Galvanised steel
- Stainless steel 303

For sealing materials, see “Permissible temperature ranges”, page 3.

### Non-wetted parts

Case: Galvanised steel or stainless steel

The choice of material for the process connection means that the case is made of the same material.

## Approvals

Logo	Description	Country
CE	<b>EU declaration of conformity</b> <ul style="list-style-type: none"> <li>■ Pressure equipment directive</li> <li>■ Low voltage directive</li> <li>■ RoHS directive</li> </ul>	European Union

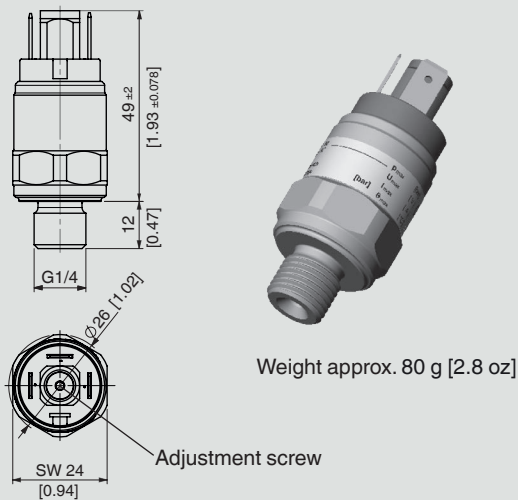
Approvals and certificates, see website

## Dimensions in mm [in]

### Standard version

#### Electrical connection

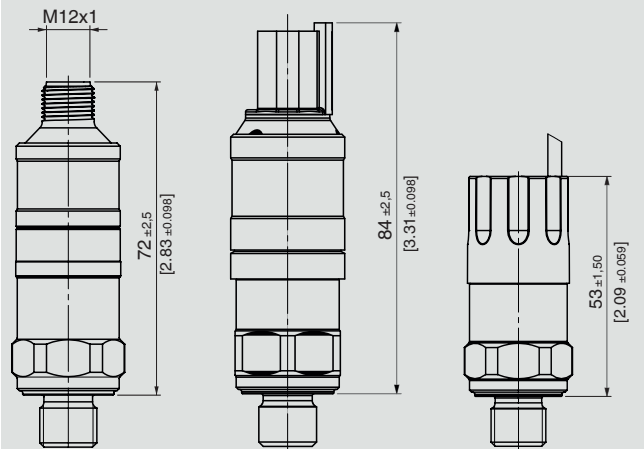
Blade terminal 6.3 x 0.8 (3-pin)



### Option

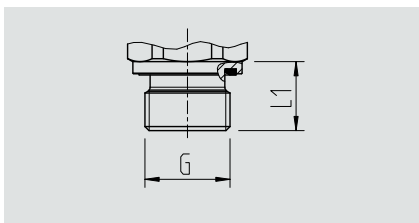
#### Electrical connection

Circular connector M12 x 1 (4-pin)    Deutsch DT04-2P (2-pin)    Cable

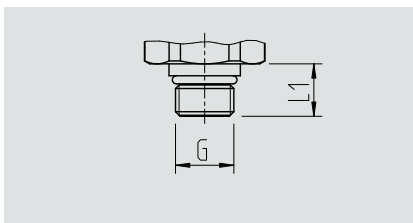


## Dimensions in mm [in]

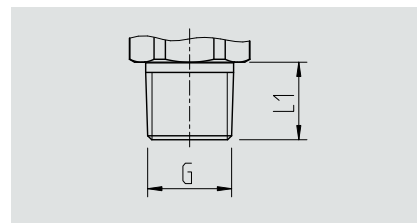
### Process connections



G	L1
G 1/8 B	10 [0.4]
G 1/4 B	12 [0.47]
M10 x 1	10 [0.4]



G	L1
7/16-20 UNF SAE BOSS	9 [0.35]



G	L1
1/8 NPT	10 [0.4]
1/4 NPT	12 [0.47]
R 1/8	10 [0.4]
R 1/4	12 [0.47]

### Scope of delivery

- Pressure switch in individual or multiple packaging
- Allen key (2 mm) for switch point setting (only with adjustable pressure switch variants)

### Accessories and spare parts

#### Mating connector

Designation	Order number		
	without cable	with 2 m cable	with 5 m cable
Circular connector M12 x 1 (4-pin)			
■ straight	2421262	11250780	11250259
■ angled	2421270	11250798	11250232

#### Case protection

Designation	Order number
Rubber protection cap (PVC)	31095267

### Ordering information

Model / Switch point setting / Setting range / Maximum working pressure / Switching function / Process connection / Sealing / Electrical connection / Options

© 05/2018 WIKA Alexander Wiegand SE & Co. KG, all rights reserved.  
The specifications given in this document represent the state of engineering at the time of publishing.  
We reserve the right to make modifications to the specifications and materials.

