

Data Sheet

PS1A

Pressure Switch



Main Features

Pressure Ranges	0 to 0.25 up to 0 to 16 bar (gage), 0 to 1.6 up to 0 to 16 bar (absolute), -1 to 0 up to -1 to 0 bar (gage)*
Electrical Connection	M12-4 Pin
Pressure Connection	G1/4A DIN 3852-E
Output Signal	4 - 20 mA, Programmable Switching Output

*for more options see How to Order

Attributes

- Programmable switching output
- 64x64 matrix OLED display
- Excellent display readability
- Highest degree of freedom of the display, approximately 700°
- Media resistant ceramic-capacitive technology
- Measurement of Vacuum up to 16 bar (gage and absolute)

Typical Applications

- Food and beverage industry
- Pharmaceutical industry
- Dispensing and packaging machines
- Sanitary applications (water and wastewater treatment)
- Combustion air flows
- Oil and gas refineries
- Chemical Processing
- Fertilizer Manufacturing

Description

The PS1A pressure switch features innovative OLED display, which ensures excellent readability of the pressure display.

Based on the pressure sensor of the P1A family the PS1A pressure switch measures not only pressure ranges from vacuum up to 16 bar, but the setting can be changed individually using the switch. Its modularity and the extensive options allow for low pressure measurement to take the advantage of the ceramic-capacitive technology, also available in a wide array of industrial applications. In addition to the wide choice of standard configurations, the pressure switch can also be customized. Designed to withstand harsh environments, it features superior EMI protection, outstanding shock and vibration performance, impressive longevity and lifetime performance and high quality. It is tested to parameters that match or exceed those of competing products on the market.

Technical Specifications

Pressure Ranges

from 0 to ...	bar (gage)	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16
from 0 to ...	bar (absolute)					1.6	2.5	4	6	10	16
Proof pressure		4x	4x	4x	4x	4x	4x	3x	3x	3x	2x
Burst pressure		6x	6x	6x	6x	6x	6x	5x	5x	4x	3x
Proof pressure	bar (gage)	-1 / +4	-1 / +4								
Burst pressure	bar (gage)	6	6								
from 0 to...	PSI (absolute)				20	30	50	75	100	150	200
Proof pressure		4x	4x	4x	4x	4x	4x	3x	3x	3x	2x
Proof pressure		6x	6x	6x	6x	6x	6x	5x	5x	4x	3x

Accuracy *1	≤ 1 % of span *3
Non-linearity *2	0.2 % of span *3
Non-repeatability	0.1 % of span *3
1-year stability	0.2 % of span *3
Switching Setpoint accuracy	≤ +/- 1% of span
Temp. Coefficients - Zero	0.2 % of span / 10 K within temperature range 0°C to + 80°C
Temp. Coefficients - Span	0.2 % of span / 10 K within temperature range 0°C to + 80°C

*1 Including non-linearity, hysteresis, non-repeatability, zero point and full scale error (corresponds to error of measurement per IEC 61298-2). Adjusted in vertical mounting position with pressure port down.

*2 BFSL according to IEC 61298-2 reference conditions to EN 61298-1

*3 Others on request

Physical

Operating Life Cycle	min. 10 million full pressure cycles over the full range
Vibration Resistance	IEC 60068-2-64 (RANDOM) 20 PSD
Shock Resistance	25 g minimum according to DIN EN 60068-2-27
Drop Test	1 meter drop on concrete as per SAE J1455 / DIN EN 60068-2-3-1
Weight	≤ 160 grams
Ingress Protection	IP6X, IPX5
Medium Temperature	-30°C to + 120°C (others on request)
Environmental Temperature	-30°C to + 85°C (depending on internal and external seal ring capability) *4
Storage Temperature	-30°C to + 50°C (depending on internal and external seal ring capability) *4
Media	All class II fluids and gases compatible with stainless steel 304 (1.4301) and the internal and external (optional) seal ring material

*4 For more details see How to Order

Electrical

Output Signal (Iout)	4...20 mA
Switching Output (Sout)	250 mA max. load
Operating Supply Voltage (Vsup)	8-33 VDC *5
Power Consumption	≤ 32mA + switching load
Overvoltage Protection	38 VDC
Short-circuit Proofness (Iout)	not applicable
Short-circuit Proofness (Sout)	yes
Insulation Voltage	500 VDC
Reverse Polarity Protection	Yes *7
Load (Iout)	$\leq (V_{sup}-9 \text{ VDC})/(0.02 \text{ A}) [\Omega]$
Response Time	≤ 5 ms max. to 63% of full scale pressure with step change on input

*5 Unit shall be supplied by a power supply with double/reinforced insulation (SELV) and limited energy in accordance to UL/EN/IEC 61010-1 or LPS in accordance to UL/EN/IEC 60950-1 or class 2 per UL1310/UL1585 (NEC or CEC). The power supply shall be approved for usage above 2000m if the pressure sensor is used in this environment. For indoor and outdoor use, not exposed to direct sunlight.

Approvals & Certificates

CE Compliance	Pressure equipment directive 2014/68/EU EMC directive 2004/30/EU, IEC 61326 Emission (Group 1, Class B) and Immunity (industrial locations)
ROHS	2011/65/EU ROHS Directive

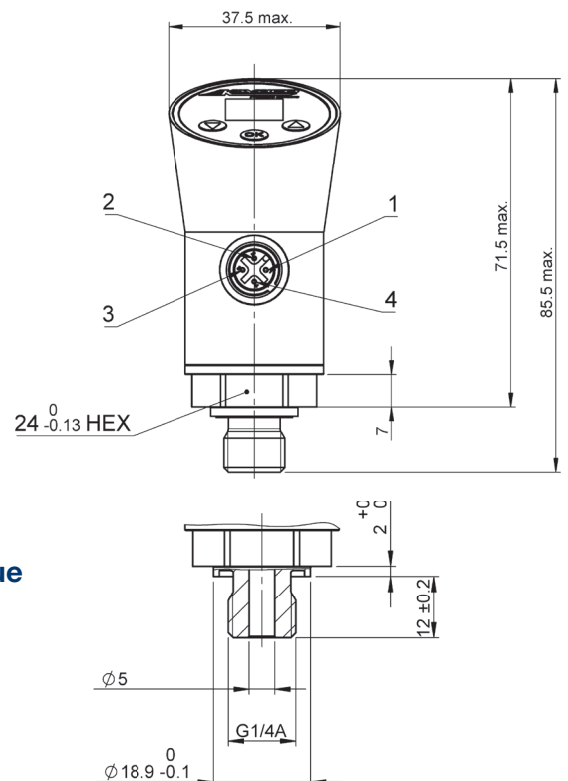
Dimensions

Pressure Sensor with Electrical Connection

M12 Pin Call Outs				
Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	Iout	GND	Sout

Pressure Connections and Recommended Installation Torque

Name	G1/4A DIN 3852-E
Thread	External
Torque	20 Nm



How to Order

PS1A

06

G

1

A

01

C

D

Pressure Ranges

01 0 - 0.25 Bar	50 0 - 5 PSI
02 0 - 0.4 Bar	51 0 - 10 PSI
03 0 - 0.6 Bar	52 0 - 15 PSI
04 0 - 1 Bar	53 0 - 20 PSI
05 0 - 1.6 Bar	54 0 - 30 PSI
06 0 - 2.5 Bar	55 0 - 50 PSI
07 0 - 4 Bar	56 0 - 75 PSI
08 0 - 6 Bar	57 0 - 100 PSI
09 0 - 10 Bar	58 0 - 150 PSI 0 - 200 PSI
30 -1 - 0 Bar	
31 -1 - 1 Bar	

Reference

- A** Absolute
- G** Gage

Output

- 1** 4-20 mA

External Seal Ring

- A** None
- B** Fluorocarbon FKM (Viton)
Only for pressure connection port option 1 lower temperature limited to -20°C
- F** Ethylene Propylene - EPDM
Only for pressure connection port option 1

Internal Seal Ring

- C** Neoprene - CR
Operating Temp: -30 to 120°C
- D** Fluorocarbon - FKM (VITON)
Operating Temp: -20 to 120°C
- E** Fluorosilicone - FVMQ
Operating Temp: -30 to 120°C
- F** Ethylene Propylene - EPDM
Operating Temp: -30 to 120°C

Built-in Electrical Connection

- C** M12-4 Pin according to IEC 61076-2-101
Sensor delivered without mating connector

Pressure Connection (Port)

- 01** G 1/4A DIN 3852-E

Example:

PS1A - 06G - 1 - A - 01 - C - D

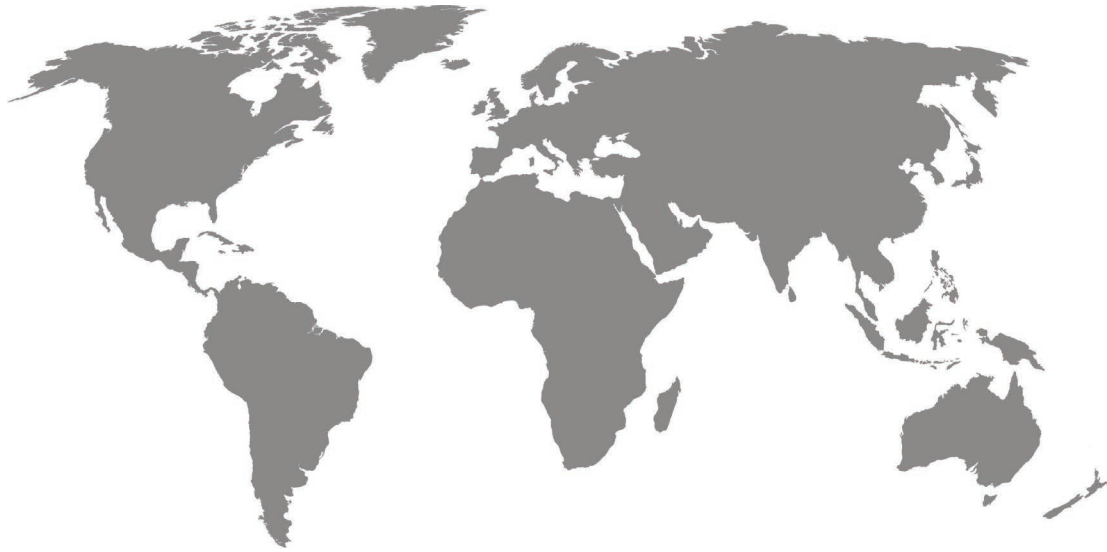
Description:

PS1A Pressure Switch, 0 - 2.5 bar Gage, No External Seal Ring, G1/4 DIN 3852-E Pressure Connection, M12-4 Pin Connector, Fluorocarbon Internal Seal Ring

Before installation and operation, ensure that the appropriate pressure sensor has been selected in terms of pressure range, design and specific measuring conditions. Non-compliance can result in serious injury and/or damage to the equipment.

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