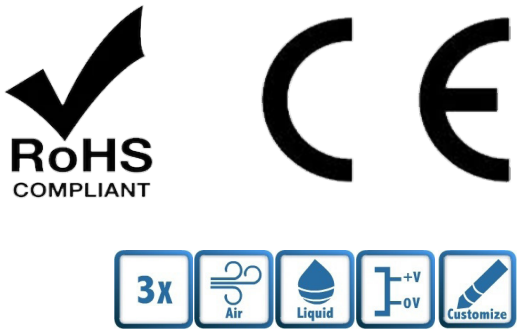
P02 Series Pressure Sensor

The P02 series pressure sensor for almost all industries applications that provide reliable pressure even in extreme environments measurement results.

The pressure sensor combines the latest Application Specific Integrated Circuit (ASIC) and Oil-Filled piezoresistive technology, provides flexible output signals, absolute or relative (gauge) versions with measurement ranges from 0–1 to 0–100 bar. A wide variety of pressure and electrical connections are available.



Features

- Oil-Filled piezoresistiv technology
- Max. measuring range 100 bar
- RoHs compliance (Lead-Free)
- The housing and wetted material are made of acid-resistant stainless steel

Advantages

- Working temperature range -40°C ...105°C
- Compatible for nearly all aggressive media
- Impact and vibration resistance
- Temperature compensated
- High vibration stability, high durability
- Optional protection for load dump transient high voltage up to 400V

Applications

- Industrial air compressors
- Water supply and drainage systems
- Mechanical and plant engineering

Standards

- EN 60770
- EN 61000-6-2 Series
- EN 61000-6-3 Series
- IEC 60068-2: 2005

Absolute maximum ratings

Symbol	Parameter	Min.	Max.	Unit
P_n	Operating pressure range (Gauge)	0	100	bar
P_m	Prove pressure	3 times P_n		
P_B	Burst pressure	6 times P_n		
T_A	Ambient operating temperature	-40	105	°C
T_m	Working media temperature	-30	105	°C

Stresses above these ratings may cause permanent damage. Exposure to absolute maximum ratings for extended periods may degrade reliability.

Specifications

Symbol	Parameter	ondition	Min.	Typ.	Max.	Unit
P_n	Operating pressure range (Gauge or Absolute) *1	P02A001BXXX	-1	1		bar
		P02016BXXX		16		
		P02020BXXX		20		
		P02030BXXX		30		
		P02042BXXX		42		
		P02050BXXX		50		
		P02100BXXX		100		
BFSL	Best fitting straight line			0.2		% F.S
ε_L	Accuracy include linearity, hysteresis and repeatability errors	@P_n, T_A = 25 °C		0.5	1	%
T_{COE}	Temperature coefficient of zero output	T_A=0°C ...80°C		0.1	0.2	% F.S/10K
T_{COUT}	Temperature coefficient of P_n	T_A=0°C ...80°C (except T_{COE})		0.1	0.2	% F.S/10K
Output	Standard electrical output signal	5 VDC excitation, ratio output	0.5		4.5	VDC
		12 to 30 VDC excitation	4		20	mA
		14 to 30 VDC excitation	0		10	VDC
		12 to 30 VDC excitation	1		5	VDC
T_R	Response time	Liquid viscosity < 100 cSt		5	10	mS
		Air		35	40	

*1 Pressure range can be customized according to requirements

General characteristics

Symbol	Parameter	Value	Unit	Comment
m-HSE	Housing material	AISI 304		AISI 316L optional
m-SR	Seal ring material	Welding or HNBR		
m-WM	Wetted materials	AISI 316L		
IP	Sealing grade	IP65 - IP68		Depending on the electrical connector
F_m	Mounting torgue	≤ 35	Nm	±10%
VIBR	Random vibration	10	g	50 - 2000 Hz X/Y/Z Axis
SHORT	Short circuit protected	Yes		
m	Mass	200 - 300	grams	

Name guide description

P02 XXXB X XX X

Series

P02: Relative pressure sensor
P02A: Absolute

Pressure

001B: 0 - 1bar(Absolute) 042B: 0 - 42bar
016B: 0 - 16bar 050B: 0 - 50bar
020B: 0 - 20bar 100B: 0 - 100bar
030B: 0 - 30bar Customized

Output

A: 0.5-4.5 VDC ratio output from 5 VDC excitation
B: 4-20mA from 10.5 to 30 VDC excitation
C: 0-10VDC output from 14 to 30 VDC excitation
D: 1 to 5 VDC output from 10.5 to 30 VDC excitation
Customized

Electrical connector

01: RK03FB 03: 2m cable
02: Packard Metri-Pack 150

Pressure connector

A: G3/8" male
B: G1/4" male
C: 1/4"-18 NPT male
D: 1/8"-27 NPT male
E: 7/16"-20 UNF male
F: 7/16"-20 UNF female
Customized

Notes

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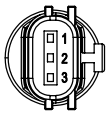
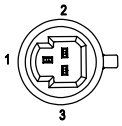
Dimension (mm)

Electrical connector and main body

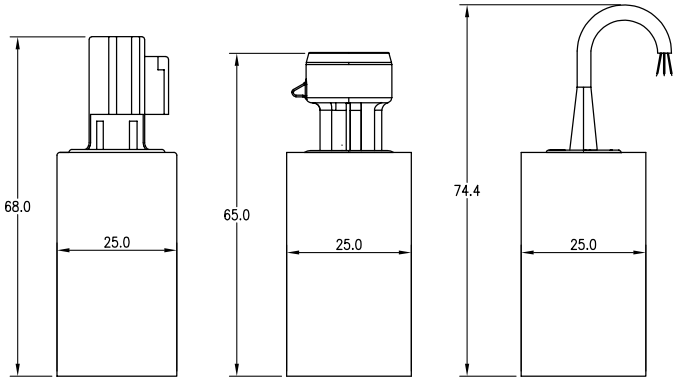
Code 01: RK03FB



Code 02: Packard Metri-Pack 150

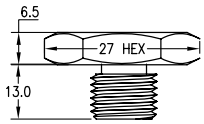


Code 03: 2m cable Red, Black, Blue

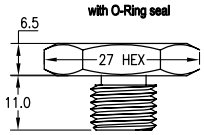


Pressure connector

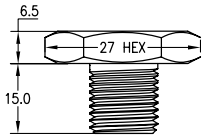
Code A
G 3/8" male



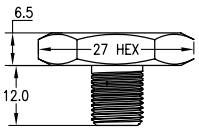
Code B
G 1/4" male
with O-Ring seal



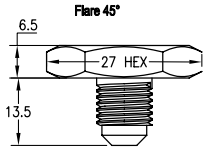
Code C
1/4"-18 NPT male



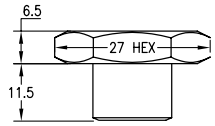
Code D
1/8"-27 NPT male



Code E
7/16"-20 UNF male
Flare 45°



Code F
7/16"-20 UNF female



Electrical Connector Code	01	02	03
	RK03FB	Packard Metri-Pack 150	2m Cable
sealing level	IP67	IP65	IP67
Material	PPS	PA66	UL2464
Pin connection 0.5 – 4.5 V, 1 – 5 V, 0 – 10 V output	1. GND, 2. V_{OUT}, 3. V_{DD}	1. V_{OUT}, 2. GND, 3. V_{DD}	BL. V_{OUT}, BK. GND, R. V_{DD}
Pin connection 4-20mA output	1. NULL, 2. -, 3. +	1. -, 2. NULL, 3. +	BL. -, BK. NULL, R. +

Safety and Environment

The product is to be installed by manufacturer trained personnel or competent person trained in accordance with manufacturer installation instructions.

With respect to applicable standards IEC 61010-1/ EN 61010-1 *safety requirements for electrical equipment for measurement, control and laboratory use part 1 general requirements*, the product should be used in limited energy secondary circuits.

Risk of electrical shock

Certain parts of the module can carry hazardous voltage during the operation process of the product because hazardous live voltage of primary conductor, power supply occurs, injury and/or serious damage will be caused if this warning is ignored.

Conducting parts must be inaccessible after installation of the product. Additional protection including shield or protective housing could be used according to IEC 60664 Insulation coordination for equipment within low-voltage supply systems.

Disconnection of the main supply will protect against possible injury and serious damage.

ESD protection

Damage from an ESD event will occur if the personnel is not well grounded when handling.

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