

P03 Series Pressure Sensor

The P03 series pressure sensor is ideal choice for demanding air conditioning and refrigeration applications where long-term reliability and accuracy is a must. The P03 series provides proven reliability at a competitive price.



Features

- Ceramic sensing element
- Output voltage proportional to pressure
- Max. measuring range 60 bar
- RoHS compliance (Lead-Free)

Applications

- Air conditioners
- Refrigeration systems
- Heat pump

Advantages

- Working temperature range -40°C ...125°C
- Compatible with R22, R407C, R410A
- 1500V insulation voltage for isolation, 50Hz, 1 min
- Overvoltage and short circuit protected

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
$V_{DD\ max.}$	Maximum supply voltage (not destructive)	-14	18	VDC
P_n	Operating pressure range (Gauge)	0	60	bar
P_m	Prove pressure	2.5 times P_n or customized		
P_B	Burst pressure	3 times P_n or customized		
T_a	Ambient operating temperature	-40	125	°C
T_m	Working media temperature	-40	125	°C
$V_{ESD-HBM}$	ESD sensitivity HBM (Human Body Model)		8	kV

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

Specifications

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
V_{DD}	Supply voltage		4.75	5	5.25	VDC
I_c	Current consumption	$P_p=0$ without load		10	15	mA
P_n	Operating pressure range (Sealed gauge)	P03010BXXX		10		bar
		P03016BXXX		16		
		P03020BXXX		20		
		P03030BXXX		30		
		P03042BXXX		42		
		P03050BXXX		50		
V_{OUT}	Ratiometric output voltage	@ P_n	0.5		4.5	VDC
C_L	Output load capacitive				1,000	pf
R_L	Output resistance pull down	V_{OUT} to GND		10		k Ω
ϵ_L	Accuracy include linearity, hysteresis and repeatability errors			0.3	0.5	%
TEB	Total error band	@ $P_n, T_a = -20^\circ\text{C} \dots 105^\circ\text{C}$		1.5	2	%
T_R	Response time			2	3	mS

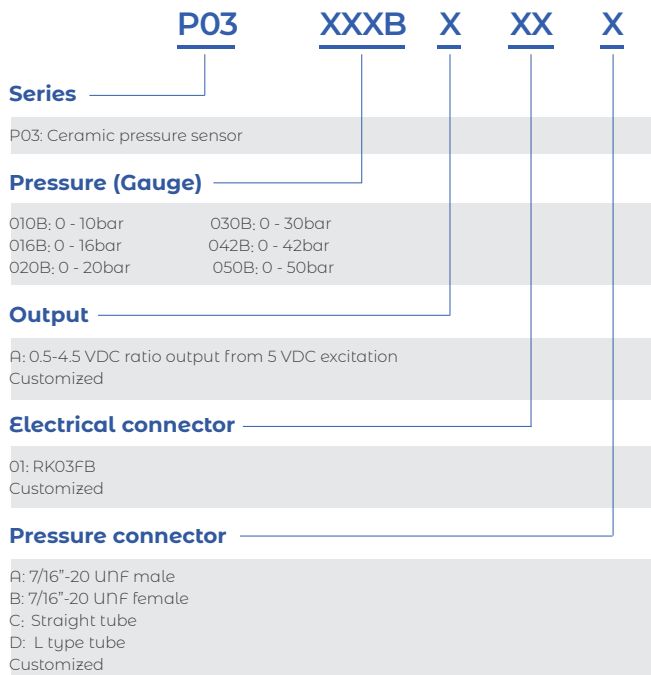
Insulation characteristics

Symbol	Parameter	Value	Unit	Comment
V_D	Insulation voltage for isolation, 50Hz, 1 min	1,500	VAC	
R_{ISO}	Isolation resistance @500VDC	>100	MΩ	

General characteristics

Symbol	Parameter	Value	Unit	Comment
m-HSE	Housing material	Brass or AISI 304		Brass for screw connection; AISI for tube connection
m-SR	Seal ring material	CR		Neoprene
IP	Sealing grade	66		
F_m	Mounting torque	20	Nm	±10%
VIBR	Random vibration	10	g	50 - 2000 Hz X/Y/Z Axis
SHORT	Short circuit protected	Yes		
m	Mass	50	grams	

Name Guide Description



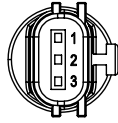
Notes

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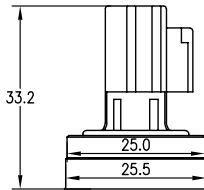
Dimension (mm)

Electrical connector
and main body

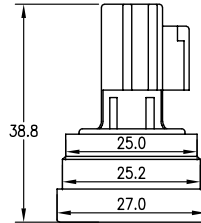
Code 01: RK03FB



For thread connector

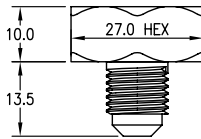


For tube connector

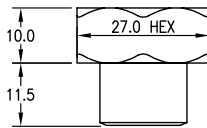


Pressure connector

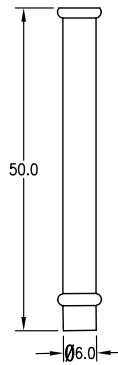
Code A
7/16"-20 UNF male
Flare 45°



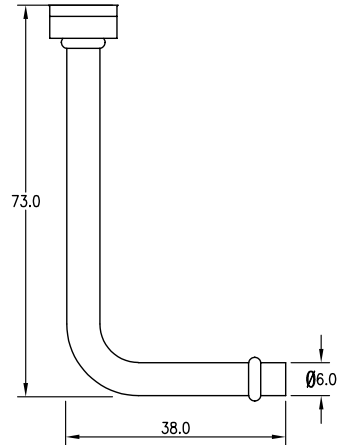
Code B
7/16"-20 UNF female



Code C
Straight tube



Code D
L type tube



Electrical Connector Code	01
	RK03FB
sealing level	IP67
Material	PPS
Pin connection 0.5 – 4.5 V output	1. GND, 2. V _{OUT} , 3. V _{DD}

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.

Important notice

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