P02 Series Pressure Transmitter

The P02 series pressure transmitter for almost all industries applications that provide reliable pressure even in extreme environments measurement results.
The pressure transmitter 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 piezoresistive 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 ...125°C
- Compatible for nearly all aggressive media
- Impact and vibration resistance
- Temperature compensated
- High vibration stability, high durability

Applications

- Industrial air compressors
- Water supply and drainage systems
- Mechanical and plant engineering
- Air conditioner and heat pump

Standards

- EN 61326-1: 2021
- IEC 60068-2-6: 2007
- IEC 60068-2-30: 2005
- IEC 60068-2-2: 2007
- IEC 60068-2-1: 2007
- IEC 60068-2-52: 2017

Absolute maximum ratings

Symbol	Parameter	Min.	Typ.	Max.	Unit
P_n	Operating pressure range (Gauge)	-1		100	bar
	Operating pressure range (Absolute)	0		100	bar
P_m	Prove pressure		2 times P_n		
P_B	Burst pressure		3 times P_n		
T_A	Ambient operating temperature	-40		125	°C
T_m	Working media temperature	-40		125	°C
I_C	Current consumption			10	mA
	Overvoltage and reverse polarity protection	-24		30	VDC
T_R	Response time		5	10	mS
E_L	Accuracy include linearity, hysteresis and repeatability errors		0.5	1	% F.S
TEB	Total error band @P_n, T_A = -20°C ...85°C		2		%
	Total error band @P_n, T_A = -40°C ...125°C		3		%
LTS	Long term stability (Per year under reference conditions)	-0.3		0.3	% F.S
T_C	Compensated temperature range	0		85	°C

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

Electrical Specifications

Charateristic	Ratiometric output	Current output	Regulated output			
	A	B	C	D	E	F
Output value	0.5...4.5 VDC	4...20 mA	0...10 VDC	1...5 VDC	0...5VDC	1...6VDC
Operating supply voltage	5±0.25 VDC	12...30 VDC	12...30 VDC	12...30 VDC	12...30 VDC	12...30 VDC

*1 Transducer will not produce valid output when supply voltage is outside of operating range.
*2 Short circuit protection between output pin and ground, and output pin and supply pin.

General characteristics

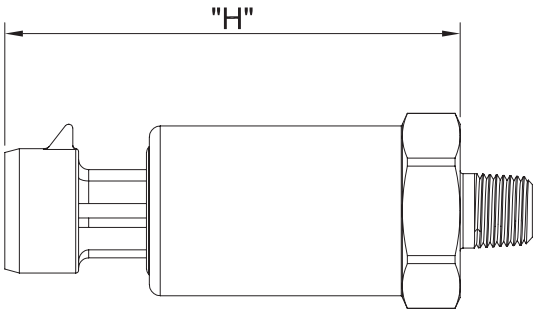
Symbol	Parameter	Value	Unit	Comment
m-HSE	Housing material	AISI 304		AISI 316L optional
m-SR	Seal type	Laser welding		
m-WM	Wetted materials	AISI 316L		
m-PLUG	RK03FB material	PPS		IP65
	Packard Metri-Pack 150 material	PA6		IP65
	DIN 175301-803C PG7 material	PA6		IP65
	M12 material	AISI 304		IP65
	Direct cable	AISI 304		IP65
IP	Sealing grade	IP65		
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	80 - 160	grams	Excluding external cables

Environmental and mechanical characteristcs

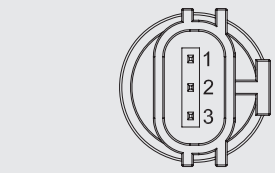
Test	Standard
Electromagnetic compatibility	EN 61326-1: 2021
Damp heat, cyclic acc. IEC60068-2-30: 2005	Place the pressure sensor at 40°C ± 2°C and 93% ± 3% relative humidity environment for 48h. Remove the sensor and return it to room temperature.
Dry heat acc. IEC60068-2-2: 2007	Place the sensor in the test chamber at 85°C±2°C, connect the power supply and reading device in accordance with the specified circuit connection, keep the power on throughout the test and apply the maximum pressure specified in the drawings., test time: 168h.
Low temperature acc. IEC60068-2-1: 2007	Place the sensor in the test chamber at -30°C±2°C, connect the power supply and reading device in accordance with the specified circuit connection, keep the power on throughout the test and apply the maximum pressure specified in the drawings., test time: 168h.
Salt mist acc. IEC 60068-2-52: 2017	Place the pressure sensor at 35°C ± 2°C environment, continuous atomisation , 48h.
Vibration acc. IEC 60068-2-6	10~55 Hz with amplitude 1 mm, all 3 directions total duration 3 hours, 1h/direction, 10g

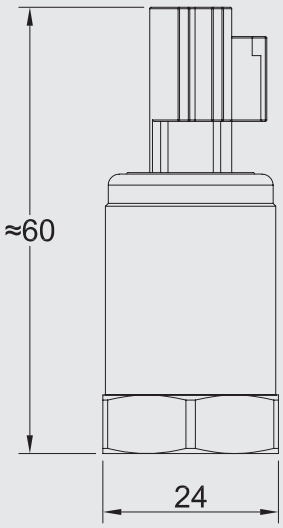
Dimensions (mm)

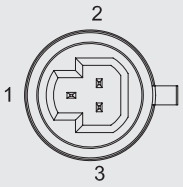
Electrical connector type dimensions

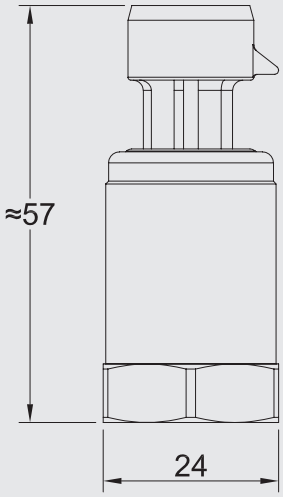


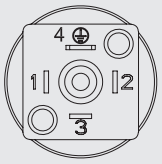
01 RK03FB			02 Packard Metri-Pack 150			03 DIN 175301-803C PG7		
Sealing grade: IP65 **Material:** PPS			**Sealing grade:** IP65 **Material:** PA66			**Sealing grade:** IP65 **Material:** PA6		
Pin	**Voltage output (0.5 – 4.5 V, 1 – 5 V, 0 – 10 V)**	**Current output (4-20mA)**	**Pin**	**Voltage output (0.5 – 4.5 V, 1 – 5 V, 0 – 10 V)**	**Current output (4-20mA)**	**Pin**	**Voltage output (0.5 – 4.5 V, 1 – 5 V, 0 – 10 V)**	**Current output (4-20mA)**
1	GND	-	1	V_{OUT}	NULL	1	V_{DD}	+
2	V_{OUT}	NULL	2	GND	-	2	V_{OUT}	-
3	V_{DD}	+	3	V_{DD}	+	3	GND	NULL
						4	NULL	NULL

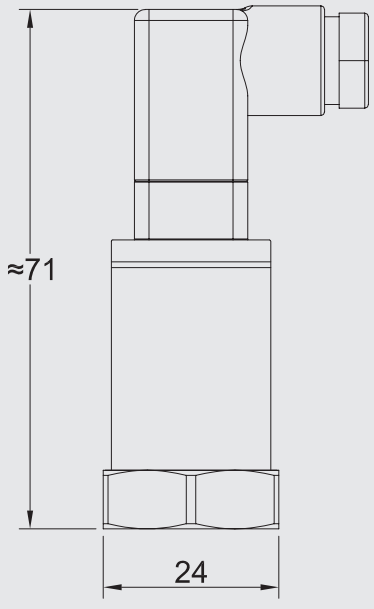




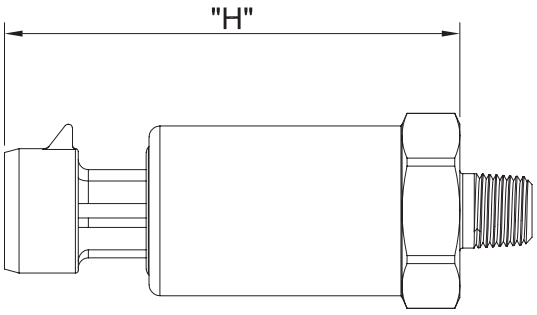




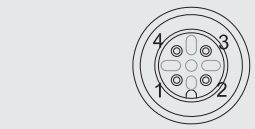


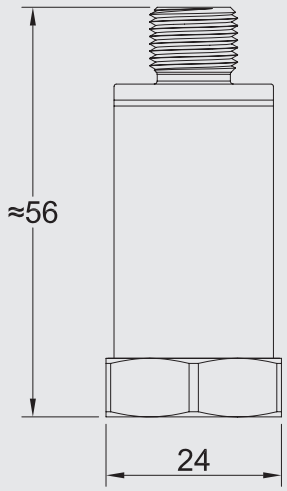


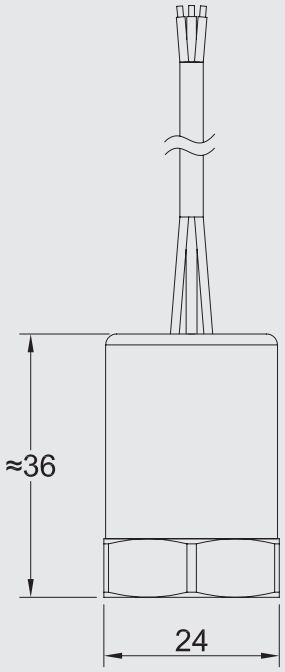
Electrical connector type dimensions



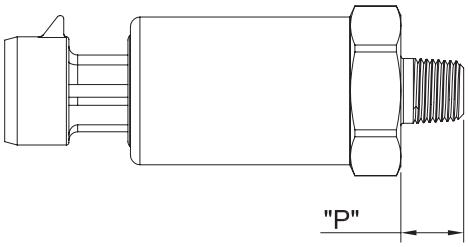
04 M12			05 Direct cable		
Sealing grade: IP65 **Material:** AISI 304			**Sealing grade:** IP65 **Material:** AISI 304		
Pin	**Voltage output (0.5 – 4.5 V, 1 – 5 V, 0 – 10 V)**	**Current output (4-20mA)**	**Pin**	**Voltage output (0.5 – 4.5 V, 1 – 5 V, 0 – 10 V)**	**Current output (4-20mA)**
1	V_{DD}	+	1 RED	V_{DD}	+
2	NULL	NULL	2 WHITE	V_{OUT}	-
3	GND	-	GND	V_{DD}	NULL
4	V_{OUT}	NULL			

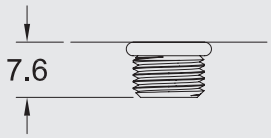
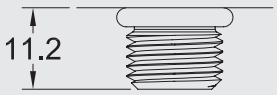
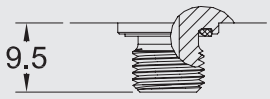
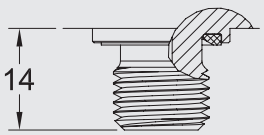
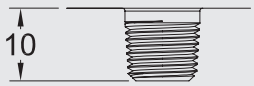
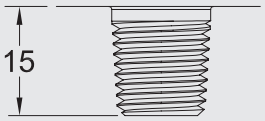
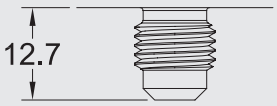
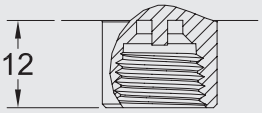




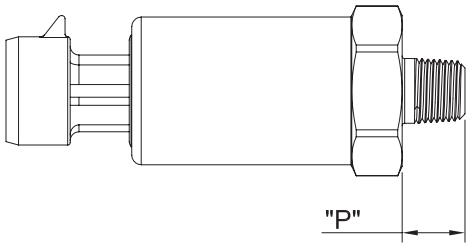


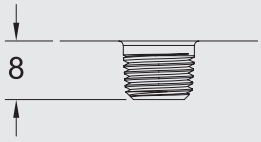
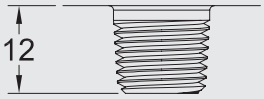
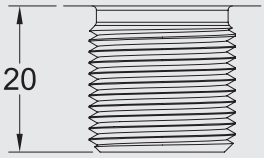
Pressure connector type dimensions



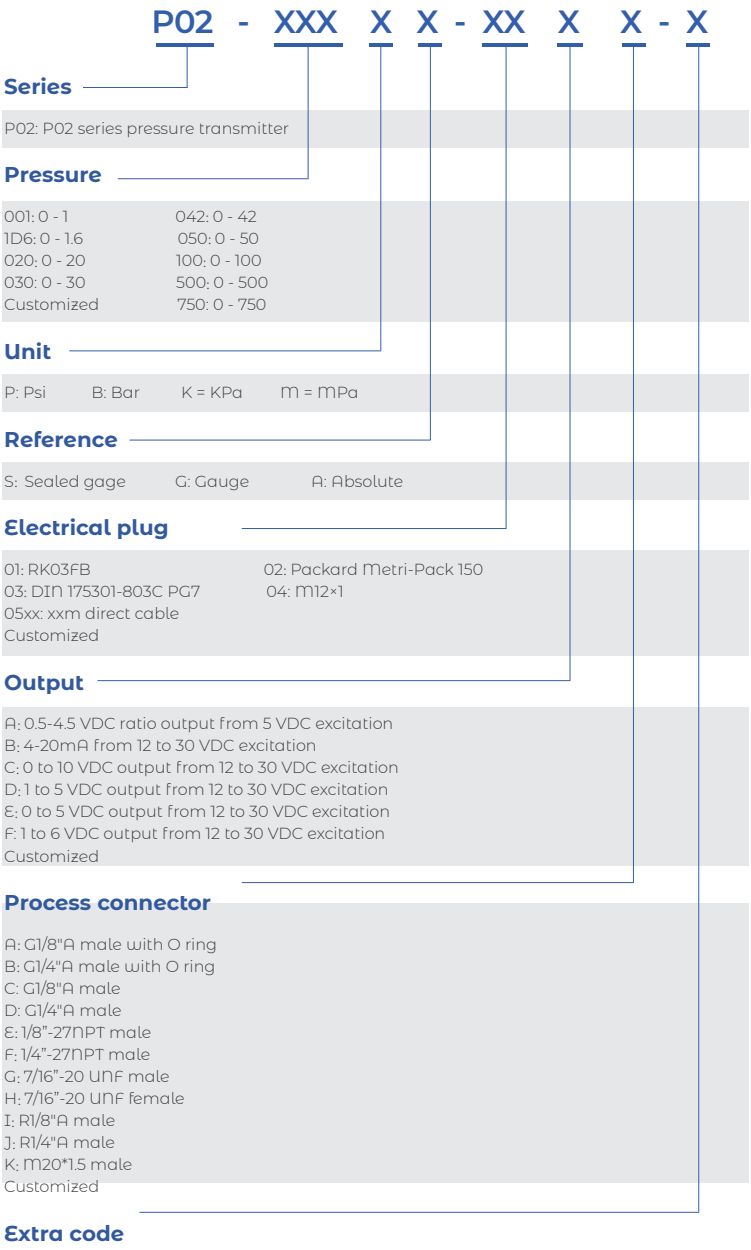
A G1/8"A male with O ring	B G1/4"A male with O ring
	
C G1/8"A male	**D G1/4"A male**
	
E 1/8"-27 NPT male	**F 1/4"-18 NPT male**
	
G 7/16"-20 UNF male	**H 7/16"-20 UNF female**
	

Pressure connector type dimensions



I R1/8"A male	J R1/4"A male
	
K M20*1.5 male	
	

Name guide description



Notes

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Accessories

- Code: 20114-001
- Packard Metri-Pack 150 connector
- Cable: 1m standard (customization available)

- Code: 20115-002
- RK03FB socket
- Cable: 1m standard (customization available)

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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