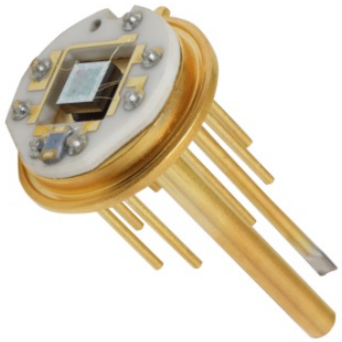
IPM10 SERIES - High Precision Modules

Absolute, gage and differential silicon pressure sense modules

Disclaimer:

This is a preliminary datasheet. The listed parameters are meant to be the development guidance and might change with the final revision of this datasheet.



Specification

Parameter	Range	Min.	Typ.	Max.	Unit
Electric and environmental					
Bridge resistance	All	5.8	6.3	6.8	kOhm
Supply voltage	All		5	12	V
Operating Temperature	All	-40		+125	°C
Storage Temperature	All	-50		+150	
Temperature coefficient[a)]					
Offset	All	-0.05[b)]	±0.01	+0.05[b)]	%FSS/K
Output span	All	-0.23[c)]	-0.20	-0.17[c)]	
Bridge resistance	All	+0.07	+0.09	+0.11	%/K
Performance					
Offset	All	-25	0	+25	mV
Non linearity[d)]	All	-0.5	0.3	+0.5	%FSS
Pressure repeatability	All	-0.05	0.02	+0.05	
Temperature hysteresis[e)]	All	-0.1	0.05	+0.1	
Long-term stability	All			0.05	%FSS/year
Full scale output					
IPM10-LP-05D040M	40mbar	50	90	140	mV@5V
IPM10-LP-xxx100M	100mbar	60	100	140	
IPM10-MP-xxx400M	400mbar	60	100	140	
IPM10-MP-xxx001B	1bar	60	100	140	
IPM10-HP-xxx004B	4bar	60	100	140	
IPM10-HP-xxx010B	10bar	60	100	140	
IPM10-HP-xxx040B	40bar	60	100	140	
Customized	Cust.		Cust.		

a) 25°...85°C
b) -0.10...+0.10 %FSS/K for IPM10-LP-xxGxxxx and IPM10-MP-xxA/Gxxxx
c) -0.27...-0.13 %FSS/K for IPM10-LP-xxA/G100M
d) End point straight line, -1.2...+1.2 %FSS for IPM10-LP-xxA/G100M
e) 25°...125°...25°C,

Key Features

- IPD10 High Precision Technology die
- World leading long-term stability
- Discrete PT1000 for temperature monitoring or compensation
- Lowest pressure and temperature hysteresis
- Fast response
- High impedance bridge
- Pressure proportional output signal

Applications

- Industrial controls
- Medical instrumentations
- High precision pressure measurements

Media

- Dry air
- Oil filled transmitters
- Non-corrosive gases
- Vacuum applications
- High static pressure

Technology

- Piezo resistive Wheatstone bridge utilized with glass or silicon backplate

Insenso GmbH
T +49 176 16164900
Info@insenso.de
www.Insenso.de
Rudower Chaussee 29
12489 Berlin, Germany

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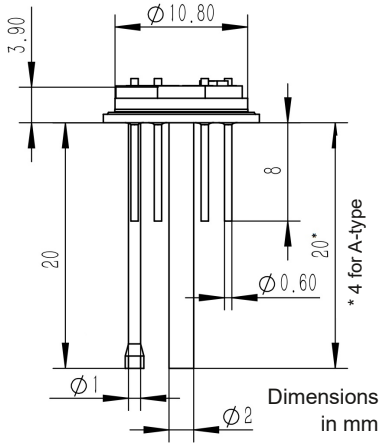
Parameter	Range	Min. from front side	Min. from rear side	Unit
Overload and burst pressure				
IPM10-LP-05D040M	40mbar	>3	>1.5	bar
IPM10-LP-xxx100M	100mbar	>5[a)]	>2.5[a)]	
IPM10-MP-xxx400M	400mbar	>12	>6	
IPM10-MP-xxx001B	1bar	>20	>10	
IPM10-HP-xxx004B	4bar	>40	>20	
IPM10-HP-xxx010B	10bar	>70	>50	
IPM10-HP-xxx040B	40bar	>120	>60	
Customized	Cust.	Cust.	Cust.	

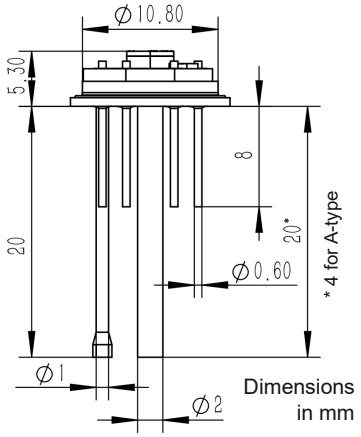
a) 3bar from FS and 1bar from RS for IPM10-LP-20Gxxxx type

Layout and Size

IPM10-xP-**0xA/G/D**

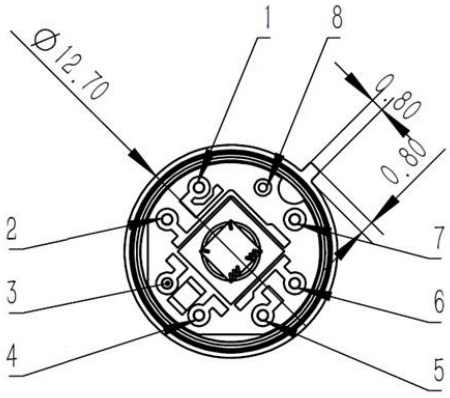


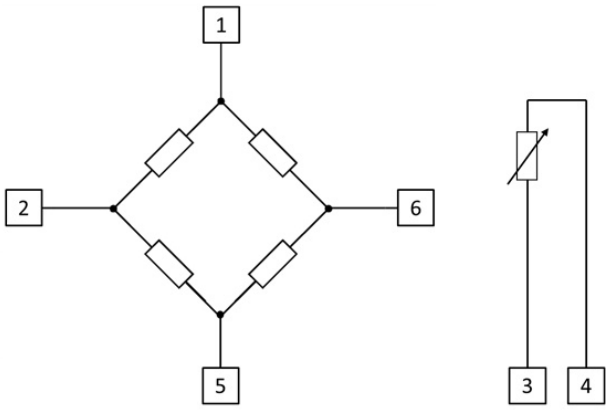
IPM10-xP-**20A/G**



Electrical Connection

Bondpad	Signal
Output	
1	+Vsupply/substrate
2	+Vout
3	Temperature sensor
4	Temperature sensor
5	-Vout
6	-Vsupply
7	Not connected
8	Tube





A = 3.9083x10^{-3}°C^{-1}
B = –5.7750x10^{-7}°C^{-2}
C = –4.1830x10^{-12}°C^{-4}
R measured resistance
t calculated temperature
R_0, A, B parameters according to DIN EN 60751

$$t = \frac{-R_0A + [(R_0A)^2 - 4R_0B(R_0 - R)]^{1/2}}{2R_0B}$$

Insenso GmbH
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Info@insenso.de
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Ordering Code

	Die Size		Backplate Option / Type		Range	Unit	
Series	**Part Number**		**Pressure**				
IPM10	**LP**	4.65x4.65mm	**05D**	0.5mm / Differential	**040**	**M**	mbar
	MP	2.65x2.65mm	**08A**	0.8mm / Absolute	**100**		
	HP	2.05x2.05mm	**08G**	0.8mm / Gage	**400**		
			20G	2.0mm / Gage	**001**	**B**	bar
					004		
					010		
					040		

Order Code Example

IPM10	-	**MP**	2.65x2.65mm	-	**05D**	0.5mm / Differential	**001**	**B**	bar

IPM10-MP-05D001B

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