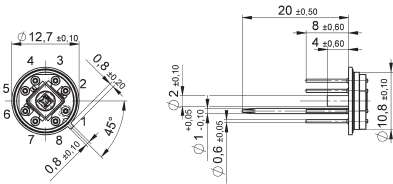
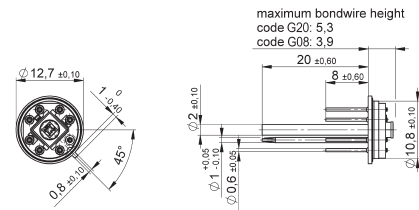


Pressure Sensor Module – Absolute and Gauge Measurements

Basic component

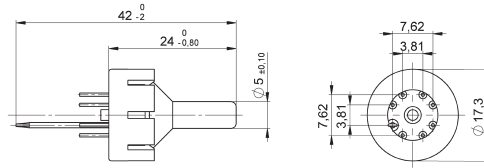


Absolute model  
T08

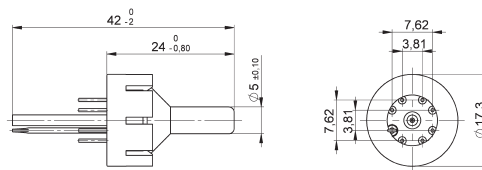


Relative model

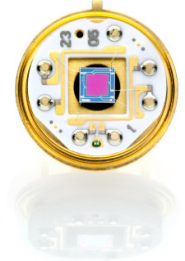
Component delivery form



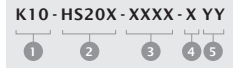
Weight approx. 4.5 g  
Protection cap is suitable for applying pressure up to 10 bar



Weight approx. 4.5 g  
Protection cap is suitable for applying pressure up to 10 bar



Order No.



- 1 **Product Code**  
K-Series STARe A/G
- 2 **Outside Dimension**  
V: 4,75 X 4,75 mm (6kPa...10kPa)  
L: 2,75 X 2,75 mm (35kPa...100kPa)  
M: 2,15 X 2,15 mm (250kPa...1MPa)
- 3 **Pressure Range [Pa]**  
06k0: 6 kPa = 60 mbar  
40M0: 40 MPa = 400 bar
- 4 **Type**  
X:A = Absolute (Glass)  
G = Gauge (Glass)
- 5 **Thickness Dies Back Plate**  
YY = Back Plate  
Thickness in 100 µm

Overview

Pressure sensor modules K-series STARe has specification similar to sense dies of our High Stability Line STARe. The dies are mounted on T08-headers and used for absolute or relative (gauge) pressure measurement. (V-, L- and M-Layout)

Note: The sensor consist of silicon, glass, glue and gold. Therefore substances which might react with these materials should be tested before application

Applications

- Industrial transmitter
- Measurement and control

Features

- Very high long term stability
- Very low pressure and temperature hysteresis
- High static pressure applicable
- Fast response
- High bridge resistance
- Fatigue free monocrystalline silicon diaphragm giving high load cycle stability
- Temperature sensor (Spreading resistance)
- Filling volume consists of ceramic components (no swelling in oil)

Common Characteristics

Type	Pressure range	Parameter	min.	typ.	max.	Unit
K10-HS20V-06k0-A/GXX	6 kPa	Span voltage	60	100	140	mV@5V
K10-HS20V-10k0-A/GXX	10 kPa	Span voltage	60	100	140	mV@5V
K10-HS20L-35k0-A/GXX	35 kPa	Span voltage	60	100	140	mV@5V
K10-HS20L-100k-A/GXX	100 kPa	Span voltage	60	100	140	mV@5V
K10-HS20M-250k-A/GXX	250 kPa	Span voltage	60	100	140	mV@5V
K10-HS20M-500k-A/GXX	500 kPa	Span voltage	60	100	140	mV@5V
K10-HS20M-01M0-A/GXX	1,0 MPa	Span voltage	60	100	140	mV@5V
K10-HS20M-03M0-A/GXX	3,0 MPa	Span voltage	60	100	140	mV@5V
K10-HS20M-10M0-A/GXX	10,0MPa	Span voltage	200	250	300	mV@5V
K10-HS20M-20M0-A08	20,0MPa	Span voltage	60	100	140	mV@5V
K10-HS20M-40M0-A08	40,0MPa	Span voltage	60	100	140	mV@5V

Certificate

ISO/TS 16949

Contact

First Sensor AG  
www.first-sensor.com

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Electrical Characteristics (measured at 5 V supply and 25 °C, unless otherwise specified)

Parameter	min.	typ.	max.	Unit
Bridge resistance	5.000	6.000	7.000	Ω
Offset voltage	-25	0	+25	mV
Temperature coefficient of bridge resistance <sup>1</sup>	+0,07	+0,09	+0,11	%/K
Temperature coefficient of offset <sup>1</sup> (>100kPa) (<250kPa)	-0,05 0,00	±0,01 +0,05	+0,05 +0,10	%F.S.S./K
Temperature coefficient of span <sup>1</sup> (>10kPa)	-0,23	-0,20	-0,17	%F.S.S./K
Temperature hysteresis <sup>1</sup>		<0,05		±%F.S.S.
Pressure hysteresis		<0,10		±%F.S.S.
Linearity error <sup>2,3</sup> (higher than 10 kPa) p-range: higher than 10MPa		<0,30 <1,00	0,50	±%F.S.S.

1) Measured from 25 °C to 85 °C. 2) End point straight line setting.  
3) Pressure applied onto the front side of the die



Order No.

K 10 - HS20X - XXXX - X YY				
1	2	3	4	5

- Product Code**  
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(6kPa...10kPa)  
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(35kPa...100kPa)  
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(250kPa...1MPa)
- Pressure Range [Pa]**  
06k0: 6 kPa = 60 mbar  
40M0: 40 MPa = 400 bar
- Type**  
X:A = Absolute (Glass)  
G = Gauge (Glass)
- Thickness Dies Back Plate**  
YY = Back Plate  
Thickness in 100 μm

Certificate

ISO/TS 16949

Maximum Rating

Type	Over Pressure (100kPa)		Burst Pressure (100kPa)	
	FS min.	RS min.	FS min.	RS min.
K10-HS20V-06k0-A/GXX	4	2*	>4	>2*
K10-HS20V-10k0-A/GXX	6	3*	>6	>3*
K10-HS20L-35k0-A/GXX	10	5	>10	>5
K10-HS20L-100k-A/GXX	20	10	>20	>10
K10-HS20M-250k-A/GXX	40	20	>40	>20
K10-HS20M-500k-A/GXX	50	25	>50	>25
K10-HS20M-01M0-A/GXX	60	30	>60	>30
K10-HS20M-03M0-A/GXX	150	75	>150	>75
K10-HS20M-10M0-A/GXX	200	75	>200	>75
K10-HS20M-20M0-A08	600	-	>600	-
K10-HS20M-40M0-A08	800	-	>800	-

FS: Frontside; RS: Rearside; \* 1 bar for G-Type

Parameter	Limit Values			Unit
	min.	typ.	max.	
Operating temperature range	-40		+125	°C
Storage temperature range	-50		+130	°C
Supply voltage		5	12	V

Contact

First Sensor AG  
www.first-sensor.com

Silicon Temperature Sensor (at  $T_A = 25^\circ\text{C}$  and  $I_B = 1\text{ mA}$ , unless otherwise specified)

Parameter	Symbol	Limit Values			Unit	
		min.	typ.	max.		
Sensor resistance at $T_A=25^\circ\text{C}$	$R_{th}$	1,85	2,00	2,15	k $\Omega$	
Spread of temperature factor						
$T_A=-25^\circ\text{C}$	$k_T$	0,655	0,66	0,675		
$T_A=0^\circ\text{C}$		0,812	0,82	0,826		
$T_A=25^\circ\text{C}$		1				
$T_A=50^\circ\text{C}$		1,195	1,20	1,215		
$T_A=75^\circ\text{C}$		1,42	1,43	1,45		
$T_A=100^\circ\text{C}$		1,66	1,68	1,70		
$T_A=125^\circ\text{C}$		1,92	1,95	1,98		



Order No.

K10 - HS20X - XXXX - X YY				
1	2	3	4	5

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YY = Back Plate  
Thickness in 100  $\mu\text{m}$

Certificate

ISO/TS 16949

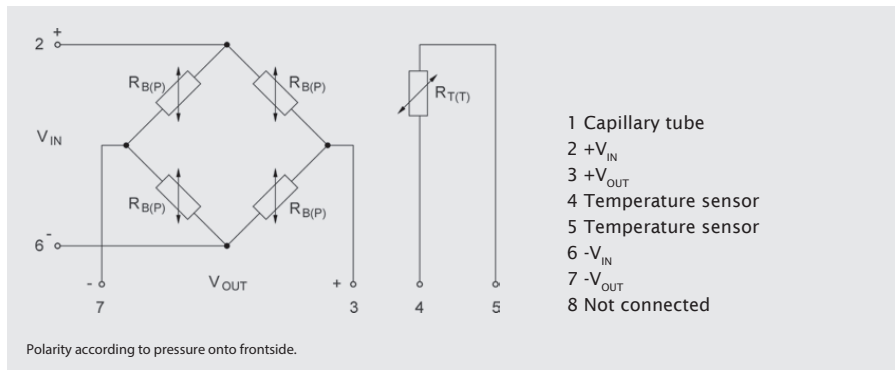
$$R_{th} = R_{25} \cdot (1 + \alpha \cdot \Delta T_A + \beta \cdot \Delta^2 T_A) [\Omega] = f(T_A)$$

$$\alpha = 7.68 \cdot 10^{-3} [K^{-1}], \beta = 1.88 \cdot 10^{-5} [K^{-2}]$$

$$k_T = \frac{R_{th}}{R_{25}} = 1 + \alpha \cdot \Delta T_A + \beta \cdot \Delta^2 T_A = f(T_A)$$

$$T = 25 + \frac{\sqrt{\alpha^2 - 4\beta} + 4\beta \cdot k_T - \alpha}{2\beta} [^\circ\text{C}]$$

Pin configuration



Contact

First Sensor AG  
www.first-sensor.com

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Disclaimer

All informations are only for product description without any legal binding. For further improvement of technical details, they are subject to change.