

# SolidSense II® GSD/GSF Series

## High-stability, UHP Pressure Transducers with Extended Range Pressure Monitoring and Control

The SolidSense II® GSD/GSF Series pressure transducers deliver an expanded pressure range from 200 Torr to 4000 psi, surpassing the GF/GI Series 1000 Torr to 3000 psi. Engineered with cutting-edge technologies, these devices provide exceptional stability, accuracy, and reliability for high-purity and ultra-high purity (UHP) pressure monitoring applications.

Designed for harsh, low-pressure semiconductor manufacturing environments, the GSD/GSF models provide control-level performance, even under demanding conditions. The value-enhanced, low-noise architecture enables precise downstream pressure control, ensuring process consistency and meeting tight customer specifications.



### Features

- Push Button Zero Adjustment
- 1" Diameter Body
- Hastelloy Sensor
- Low Noise

### Benefits

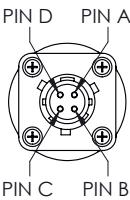
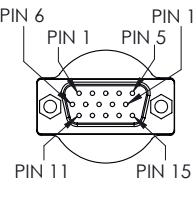
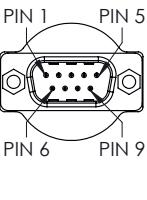
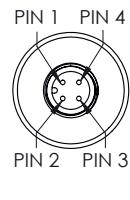
- Easily accessible quick touch design
- Fits in small profile spaces
- Superior corrosion resistance
- Strong signal stability

# Product Specifications

		Description
<b>Performance</b>		
Full Scale Pressure Range	200 Torr to 4000 psi, in between full scale ranges available	
Operating Temperature	-4°F to 140°F (-20°C to 60°C)	
Storage Temperature	-40°F to 185°F (-40°C to 85°C)	
Compensated Temperature	-4°F to 140°F (-20°C to 60°C)	
Burst Pressure	300% F.S. up to 5000 psi	
Proof Pressure	200% F.S. up to 5000 psi	
Thermal Error - Zero or Span Ref 68°F	±0.02% F.S./°F	
Accuracy	±0.25% F.S. (BFSL)	
Response Time	5 msec max.	
Helium Leak Rate	4 x 10^-9 ATM CC/sec	
<b>Mechanical</b>		
Housing	Stainless Steel	
Wetted Parts	Hastelloy C-276	
Wetted Internal Volume	0.1 cubic inch for GSD, .15 cubic inch for GSF	
Approximate Weight	Varies with fitting 5-8 oz + cable 0.4 oz/ft	
Gauge Reference Pressure Vent	Via cable	
<b>Electrical</b>		
Supply Current	10mA for voltage output	
Power Requirements	12 - 32 Vdc for all output configurations except 13 - 32 Vdc for 0 - 10 Vdc output	
Zero	Push Button	
Cable	24 AWG, PVC wire insulation, aluminum foil shielded, PVC jacket, nom. outer dia 5mm, min bend radius 50mm	
Mis-wire Protection	Power Supply Reverse Polarity	
Load Resistance	RL > 10K Ohms	
<b>Approvals and Compliance</b>		
RoHS	Compliant to 2015/863/EC	
REACH	Compliant to 1907/2006/EC	
Shock	40G, terminal peak sawtooth pulse, 9 msec, MIL-STD-810 Method 516.5 Procedure I	
Vibration	1.04 G RMS 10-500 Hz, MIL-STD-810 Method 514.5 Procedure I Category 4 Figure 514.5C-1	
Weather Proof Rating	IP54 (electrical termination end protected)	
EMC	EMC Directive 2014/30/EU	

# Product Dimensions

For overall dimensions - Combine measurements from Tables: Connection + Housing + Fitting (Flow through or Dead end)

Connection Code	Connection Dimension	Diagram	Diagram	Diagram	Diagram
P, A, G, Y, M, H, V, F	0.20in [5.0mm]				
D, K	0.68in [17.4mm] (Top Mount) 0.20in [5.0mm] (On Pigtail)				
Q	0.78in [19.8mm] (Top Mount) 0.20in [5.0mm] (On Pigtail)				
B	0.87in [22.0mm] (Top Mount) 0.20in [5.0mm] (On Pigtail)				

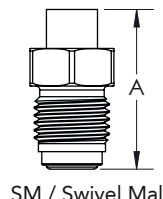
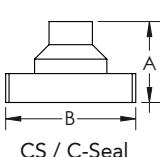
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Housing	Housing Dimension
Default	2.54in [64.5mm] (Top Mount Conn.) 2.85in [72.5mm] (Cable Conn.)

+

GSD Fitting Code	GSD Fitting Dimension A	GSD Fitting Dimension B
SF / F2	0.60in [15.2mm]	-
CS / C2	0.70in [17.8mm]	1.12in [28.4mm]
SC	0.70in [17.8mm]	1.48in [37.6mm]
4W	0.85in [21.6mm]	1.12in [28.5mm]
NT	0.96in [24.4mm]	-
CT	0.98in [24.9mm]	-
5W	1.07in [27.1mm]	1.54in [39.0mm]
4S	1.17in [29.6mm]	-
SM / M2	1.19in [30.2mm]	-
CD	1.20in [30.5mm]	1.12in [28.4mm]
CH	0.70in [17.8mm]	1.49in [37.8mm]

Dead End Fittings



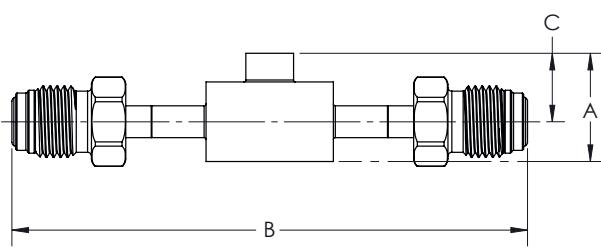
CS / C-Seal

SM / Swivel Male

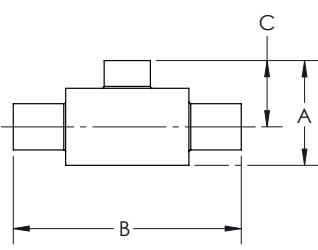
OR

GSF Fitting Code	GSF Fitting Dimension A	GSF Fitting Dimension B	GSF Fitting Dimension C
CT	0.91in [23.1mm]	2.90in [74mm]	0.47in [11.9mm]
2T, 3T, 4T	0.85in [21.6mm]	1.85in [47mm]	0.54in [13.7mm]
VM	0.85in [21.6mm]	2.24in [57mm]	0.54in [13.7mm]
VS	0.85in [21.6mm]	2.60in [66mm]	0.54in [13.7mm]
SF	0.85in [21.6mm]	2.96in [75mm]	0.54in [13.7mm]
SM	0.85in [21.6mm]	4.05in [103mm]	0.54in [13.7mm]
1M	0.98in [24.9mm]	2.24in [57mm]	0.54in [13.7mm]
4A	1.72in [43.7mm]	0.82in [21mm]	1.56in [40mm]

Flow Through Fittings



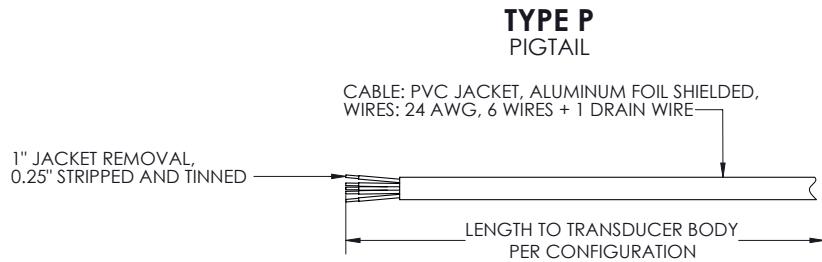
SM / Swivel Male



3T / Tube Stub

\*Shown are just a few of the available configurations. See dimension tables for additional details

# Wiring Information



## Electrical Connection Wiring

Connector Code	Current Output			Voltage Output			
	+ Supply (+E)	- Supply (-E)	Drain/Shield	+ Supply (+E)	+ Output (+O)	COM	Drain/Shield
A	1	2	3	-	-	-	-
B	A	D	**(On Pigtail)	A	B	D	**(On Pigtail)
D	-	-	-	7	2	5, 12	**(On Pigtail)
F	-	-	-	7	2	5, 12	**(On Pigtail)
G	-	-	-	1	3	2, 4	-
H	1	2	3	2	3	1	-
K	-	-	-	4	1	8, 9	**(On Pigtail)
M	-	-	-	1	3	2	-
P	RED	BLACK	-	RED	GREEN	BLACK	-
Q	1 (Top Mount)	3 (Top Mount)	2 (Top Mount)	1	4 (Top Mount) 3 (On Pigtail)	3 (Top Mount) 2, 4 (On Pigtail)	2 (Top Mount) **(On Pigtail)
V	1	2	3	2	3	1, 4	5
Y				A	B	D	

\*\* Cable drain wire is always connected to the metal housing inside the transducer

# Model Code

Code Description	Code Option	Option Description	GSD	GSF
I. Base Model Code	GS	Pressure Transducer	X	X
II. Body Type	D	Dead End	X	
	F	Flow Through		X
III. Pressure Range <i>*Refer to Table 1 below for standard combinations and examples</i>	.29	0.29	X	X
	002	2	X	X
	030	30	X	X
	100	100	X	X
	200	200	X	X
	500	500	X	X
	1K0	1000	X	X
	1K5	1500	X	X
IV. Pressure Units (Full Scale Range) <i>*Refer to Table 1 below for standard combinations and examples</i>	P	Psi	X	X
	B	Bar	X	X
	K	KPA	X	X
	M	MPA	X	X
	T	Torr	X	X
V. Pressure Reference <i>*Refer to Table 1 below for standard combinations and examples</i>	A	Absolute	X	X
	C	Compound	X	X
	G	Gauge	X	X
VI. Output	2	3-wire (true) 0-5 Vdc	X	X
	3	3-wire (true) 0-10 Vdc	X	X
	4	4-20 mA	X	X
	5	3-wire 0.05-5.05 Vdc	X	X
	6	3-wire 0.2-5.2 Vdc	X	X
	7	3-wire 2-10 Vdc	X	X
	8	3-wire 1-5 Vdc	X	X
	9	3-wire 1-10 Vdc	X	X

Code Description	Code Option	Option Description	GSD	GSF
VII. Electrical Connection *Refer to examples in Table 2 below	A	3 Pin Amp Connector [Pigtail] (current output only)	X	X
	B	Bayonet [Pigtail or Top Mount]	X	X
	D	15-Pin DB HD Male [Pigtail or Top Mount]	X	X
	F	15-Pin DB Male [Pigtail or Top Mount]	X	X
	G	4 Pin Amp Connector [Pigtail] (Voltage output only - see pin out)	X	X
	H	3 Pin Molex Connector [Pigtail] (Voltage output only - see pin out)	X	X
	K	9-Pin DB HD Male [Pigtail or Top Mount]	X	X
	M	4 Pin Amp Connector [Pigtail] (Voltage output only - see pin out)	X	X
	P	[Pigtail] Cable	X	X
	Q	4-Pin M12 Male [Pigtail or Top Mount]	X	X
	V	6 Pin Molex Connector [Pigtail]	X	X
	Y	4 Pin Amp Connector [Pigtail] (Voltage output only - see pin out)	X	X
VIII. Electrical Cable Length *Refer to examples in Table 2 below	.5	0.5	X	X
	02	2	X	X
	06	6	X	X
	12	12	X	X
	XX	Customer defined	X	X
IX. Electrical Cable Length Units *Refer to examples in Table 2 below	I	Inches	X	X
	F	Feet	X	X
	M	Meters	X	X
X. Fittings	CS	1.125" C-Seal	X	
	C2	1.125" C-Seal (Hastelloy)	X	
	CD	Elongated 1.125" C-Seal	X	
	SC	1.5" C-Seal	X	
	4W	1.125" W-Seal	X	
	5W	1.5" W-Seal	X	
	4S	1/4" Tube Stub	X	
	NT	1/4" NPT, Male	X	
	SF	1/4" Face Seal Swivel, Female (w/ 1/4" Duncan T for GSF)	X	X
	F2	1/4" Face Seal Swivel, Female (Hastelloy)	X	X
	SM	1/4" Face Seal Swivel, Male (w/ 1/4" Duncan T for GSF)	X	X
	M2	1/4" Face Seal Swivel, Male (Hastelloy)	X	X
	2T	1/2" Tube Stub, Duncan T		X
	4T	1/4" Tube Stub, Duncan T		X
	VM	1/4" Face Seal Fixed, Male (Flow Thru)		X
	VS	1/4" Face Seal Fixed, Male / 1/4" Face Seal Swivel Female		X

## Sample Model Code

I	II	III	IV	V	VI	VII	VIII	IX	X
GS	D	250	P	A	3	P	06	I	SF

Example = Dead End, 250 psia, 0-10 Vdc, 6" Pigtail Connector, 1/4" Face Seal Swivel, Female

**Table 1 - Standard Pressure Range and Unit Combinations**

		IV. / V. Pressure Unit and Reference		III. Pressure / Vacuum Range Code								
PSI	Code Option	030	045	060	100	150	250	500	1K0	1K5	2K5	3K0
	PA	30	-	60	100	-	250	500	1000	-	2500	3000
	PC	30	45	60	100	150	250	500	1000	1500	2500	3000
	PG	30	-	60	100	-	250	500	1000	-	2500	3000
BAR	Code Option	002	007	017	034	069	100	172	207			
	BA	2	7	17	34	69	100	172	207			
	BC	2	7	17	34	69	-	172	207			
	BG	2	7	17	34	69	-	172	207			
MPa	Code Option	.29	.69	1.7	3.4	6.9						
	MA	0.29	0.69	1.7	3.4	6.9						
	MC	-	0.69	1.7	3.4	6.9						
	MG	-	0.69	1.7	3.4	6.9						
KPa	Code Option	207										
	KA	207										
	KC	207										
	KG	207										
Torr	Code Option	500	1K0	1K5								
	TA	500	1000	1500								

Above are standard configurations. Consult factory for non-standard configurations.

Pressure Range/Unit Value	III. Pressure Range			IV. Pressure Units		V. Pressure Reference
1500 Torr (A)	1	K	5	T		A
100 PSIA	1	0	0	P		A
2 Bar (G)	0	0	2	B		G
1.7 MPa (G)	1	.	7	M		G

The above are configuration examples. In-between range 10-5000 psi can be coded similarly.

Refer to table 1 for standard combinations.

**Table 2 - Connector Combination Examples**

Connector Combination Examples	VIII. Electrical Connection	IX. Electrical Cable Length	X. Electrical Cable Length Unit
6" Pigtail	P	0	I
12" Pigtail	P	1	I
2' Pigtail	P	0	F
0.5m Pigtail	P	.	M

Connector types with various cable lengths 2"~200" can be coded similarly.

# Service and Support

Brooks is committed to assuring all of our customers receive the optimal solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration and is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

Visit [www.BrooksInstrument.com](http://www.BrooksInstrument.com) to locate the service location nearest to you.

## START-UP SERVICE AND IN-SITU CALIBRATION

Brooks Instrument can provide start-up service prior to operation when required. For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

## SEMINARS AND TRAINING

Brooks Instrument can provide seminars and dedicated training to engineers, end users, and maintenance persons.

*Please contact your nearest sales representative for more details.*

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