

SolidSense II[®] GF/GI Series

High-Stability, UHP Pressure Transducers for Process Gas Monitoring

SolidSense II[®] pressure transducers are designed for stable, accurate, and reliable pressure monitoring in high-purity and ultra-high purity (UHP) applications. A combination of optimum design and materials improves both signal stability and reliability in numerous pressure measurement applications.

SolidSense II[®] pressure transducers employ ultra-stable, micro-machined silicon strain gauges that are matched and fused to the metal diaphragm at high temperatures to relieve manufacturing induced stress. The process reduces drift or lack of zero stability commonly associated with competitive products. Consequently, downtime for zero adjustment to compensate for drift is significantly reduced.



Features

Two Pairs of Strain Gauge Sensors

Glass Fusion Process to Bond Strain Gauge

Stress Isolation Stage

Digital Temperature Compensation

Digital Linearization and Calibration

Fully Swept Flowpath

Integrated Fully Rotatable Display Option

Benefits

Precision matched sensors for improved performance

High temperature glass bonding drives off any mechanically induced build up of stress from sensor manufacturing process

Minimizes stress introduced during installation of the transducer

Improved thermal stability over entire range of temperature

Consistency of performance, improved reproducibility

Ensures contamination-free pressure measurement

Local indication of process pressure for safe system maintenance. Compact with no special wiring for easy system integration/installation

Product Specifications

	GF Series - Non-Display Version	GI Series - Display Version
Performance		
Operating Temperature	-20°F to 180°F (-29°C to 82°C)	-20°F to 140°F (-29°C to 60°C)
Storage Temperature	-40°F to 180°F (-40°C to 82°C)	-40°F to 167°F (-40°C to 75°C)
Compensated Temperature	-4°F to 140°F (-20°C to 60°C), 68°F to 140°F (20°C to 60°C) 0-10 Vdc version	
Burst Pressure	400% full scale	
Proof Pressure	200% full scale up to 2,000 psi, 150% full scale for higher ranges	
Accuracy	0.25% full scale (BFSL)	
Response Time	< 5 msec	
Zero and Span Temperature Coefficient (each)	---	
>100 PSI Ranges Full Scale	±0.02% full scale/°F (-4°F to 140°F, -20°C to 60°C) ±0.50% full scale (68°F to 140°F, 20°C to 60°C) 0 to 10 Vdc version	
<100 PSI Ranges Full Scale	±0.04% full scale/°F (-4°F to 140°F, -20°C to 60°C) ±1.00% full scale (68°F to 140°F, 20°C to 60°C) 0 to 10 Vdc version	

Mechanical		
Housing	Stainless steel, polymer plastics	
Wetted Parts	316L stainless steel, SEMI F20	
Surface Finish	Compliant with SEMI F19	
Cleanliness	Compliant to ASTM F1374-92 (2005)	
Internal Volume	1.79cc	
Process Connections	(See Product Configurations for available options)	
Approximate Shipping Weight	0.70 lb. (0.32 kg)	

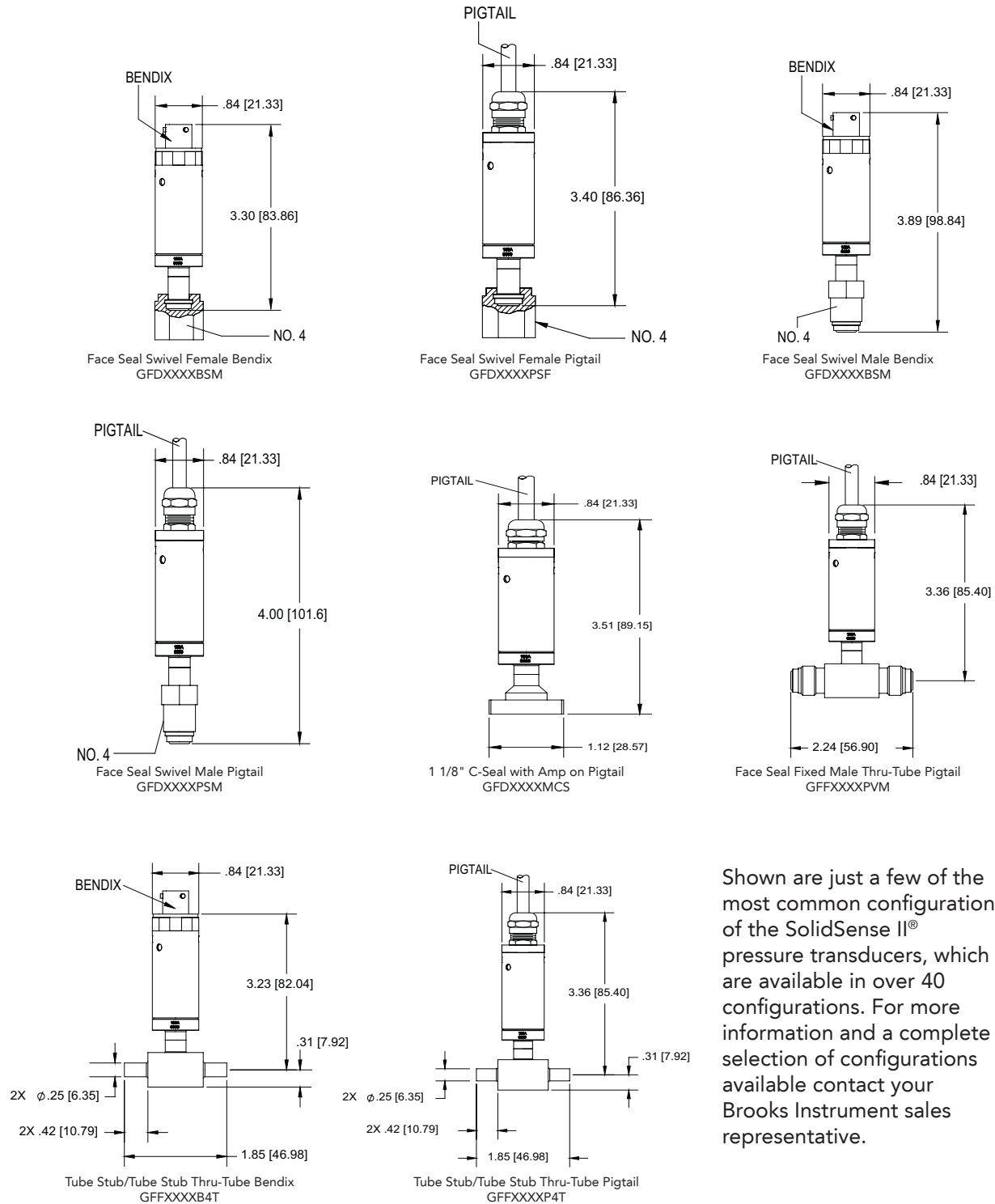
Electrical		
Supply Current	Max. 10 mA	Max. 30 mA
Power Requirements	10 to 30 Vdc for 4 to 20 mA output 11 to 30 Vdc for 0 to 5 Vdc output 13 to 32 Vdc for 0 to 10 Vdc output	15 to 30 Vdc for 4 to 20 mA output and no signal output 11 to 30 Vdc for 0 to 5 Vdc output 13 to 30 Vdc for 0 to 10 Vdc output
Optional Display	Non-Display Version	Display Version
Digits	N/A	-xxx to 1xxx
Type	N/A	7 Segment Red LED
Polarity	N/A	Automatic (-) Display
Over Pressure Reading Trigger	N/A	110% full scale ± 5% full scale (Display reading: 1---)
Display Accuracy	N/A	± 0.25% of Rdg ± 1 Count for psi
Display Accuracy (Excluding Transducer Output)	N/A	± 0.25% of Rdg ± 5 Count for kPa
Character Size	N/A	0.30" height
kPa/psi Switch	N/A	Yes
Rotatable	N/A	Continuous rotation covering 4 quadrants
Zero Pot	N/A	Yes
Zero Pot Adj. Screwdriver	1-1.2mm flat head	1-1.2 mm flat head

Approvals and Compliance		
FM Approval	Some GFD and GFF models are FM approved. Consult factory for more information	
EMC	Compliant to EU Directive 2014/30/EU	
RoHS	Compliant to EU Directive 2002/95/EC	

Display Digit Rule

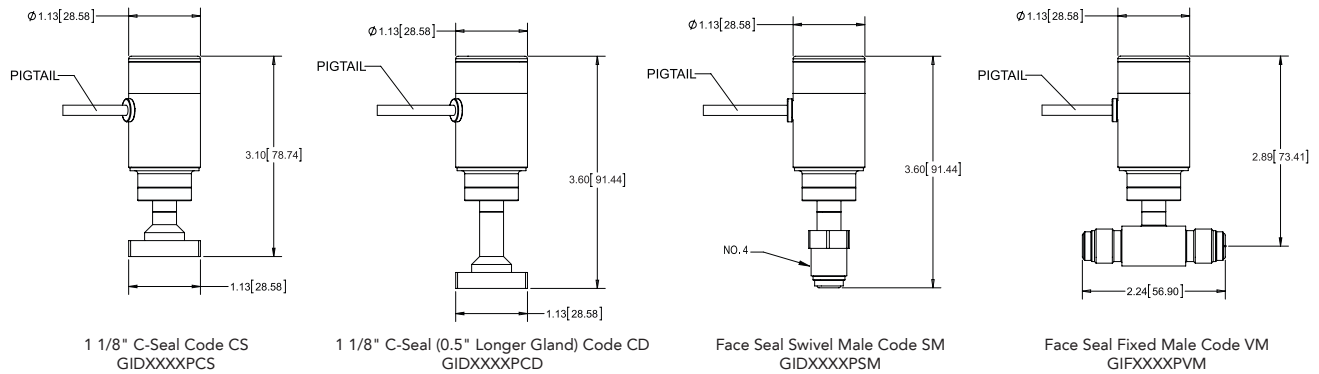
Pressure Unit	Full Pressure Range	Display Digit	Decimal Point	Negative Pressure	Examples
PSI	30 - 3000	3 OR 4	0	SHOW "-"	-013, 005, 030, 999, 3000
KPA	66 - 999	3 OR 4	0	SHOW "-"	-013, 005, 030, 999, 3000
PSI	30 - 3000	3 OR 4	0	SHOW "-"	-013, 005, 030, 999, 3000
MPA	0.066 - 20.68	4	2 OR 3	SHOW "-"	-0.10, 6.894, 20.68
PSI	30 - 3000	3 OR 4	0	SHOW "-"	-013, 005, 030, 999, 3000
BAR	0.66 - 206.8	3 OR 4	1 OR 2	SHOW "-"	-0.01, 01.00, 206.8
PSI	9 - 29	3 OR 4	2	N/A	0.00, 4.83, 19.34
TORR	1000 - 1500	3 OR 4	0	N/A	1000, 1500

GF Series - Non-Display Configurations



Shown are just a few of the most common configurations of the SolidSense II[®] pressure transducers, which are available in over 40 configurations. For more information and a complete selection of configurations available contact your Brooks Instrument sales representative.

GI Series - Integrated Display Configurations



Current Output Wiring

Connection	+ Supply (+E)	- Supply (-E)	Drain	Shield	N.C. Pins	Model			
						GFD	GFF	GID	GIF
TYPE A	1	2	3	---	---	X	X	X	X
TYPE B	A	D	---	---	OTHER	X	X		
TYPE H	1	2	3	---	---	X	X	X	X
TYPE L	RED	BLACK	GND	---	GREEN	X	X	X	X
TYPE N	A	D	---	---	---	X	X	X	X
TYPE P	RED	BLACK	GND	---	GREEN	X	X	X	X
TYPE Q	1	3	---	---	OTHER	X	X	X	X
TYPE S	6	3	DB9 SHELL	---	OTHER	X	X	X	X
TYPE V	1	2	---	3	OTHER			X	X
TYPE Z	A	D	---	---	OTHER	X	X	X	X

Voltage Output Wiring

Connection	+ Supply (+E)	- Supply (-E)	+ Output (+O)	- Output (-O)	Common	Drain	N.C. Pins	Model			
								GFD	GFF	GID	GIF
TYPE B	A	---	B	---	D	---	C	X	X		
TYPE D	7	---	2	---	5, 12	---	OTHER	X	X		
TYPE E	7	---	2	---	5, 12	---	OTHER	X	X	X	X
TYPE G	1	2	3	4	---	---	---	X	X	X	X
TYPE H	2	---	3	---	1	---	---	X	X	X	X
TYPE K	4	9	1	8	---	---	OTHER	X	X		
TYPE L	RED	---	GREEN	---	BLACK	GND	---	X	X	X	X
TYPE M	1	---	3	---	2	---	4	X	X	X	X
TYPE N	A	---	B	---	D	---	C	X	X	X	X
TYPE P	RED	---	GREEN	---	BLACK	GND	---	X	X	X	X
TYPE Q	1	3	4	2	---	---	---	X	X	X	X
TYPE R	1	2	3	4	---	---	---	X	X	X	X
TYPE V	2	---	3	---	1, 4	5	6	X	X	X	X
TYPE W	1	2	3	4	---	---	---			X	X
TYPE Y	1	---	3	---	2	4	---	X	X	X	X
TYPE Z	A	---	B	---	D	---	C	X	X	X	X
TYPE 3	1	---	3	---	2	---	4	X	X	X	X

Code Description	Code Option	Option Description	GFF	GFD	GIF	GID
I. Base Model Code	GF	Pressure Transducer	X	X		
	GI	Pressure Transducer with Integrated Display			X	X
II. Body Type	D	Dead End		X		X
	F	Flow Through	X		X	
III. Pressure / Vacuum Range *Refer to available combinations in Range/Unit table below	00	30	X	X	X	X
	45	45	X	X	X	X
	60	60	X	X	X	X
	01	100	X	X	X	X
	02	250	X	X	X	X
	X1	150	X	X	X	X
	X2	235	X	X	X	X
	05	500	X	X	X	X
	10	1000	X	X	X	X
	25	2500	X	X	X	X
	30	3000	X	X	X	X
	15	1500 Torr Only	X	X	X	X
IV. Pressure / Vacuum Units (Full Scale Range ¹) *Refer to available combinations in Range/Unit table below	A	Absolute, psi	X	X	X	X
	C	Compound, psi	X	X	X	X
	G	Gauge, psi	X	X	X	X
	B	Absolute, Bar	X	X	X	X
	P	Compound, Bar	X	X	X	X
	S	Gauge, Bar	X	X	X	X
	F	Absolute, KPa	X	X	X	X
	R	Compound, KPa/MPa	X	X	X	X
	K	Gauge, KPa	X	X	X	X
	E	Absolute, MPa	X	X	X	X
	D	Gauge, MPa	X	X	X	X
	T	Absolute Torr (available for PSI 05, 10, & 15 only)	X	X	X	X

***Range/Unit Available Combinations Table**

III. Pressure/ Vacuum Range Code		Select Range →	00	45	60	01	X1	X2	02	05	10	14	15	25	30
IV. Pressure / Vacuum Units (Full Scale Range)	A	PSI (A)	30	-	60	100	-	-	250	500	1000	-	-	2500	3000
	C	PSI (C)	30	45	60	100	150	235	250	500	1000	-	1500	2500	3000
	G	PSI (G)	30	-	60	100	-	-	250	500	1000	-	-	2500	3000
	B	BAR (A)	2	-	-	7	-	-	17	34	69	100	-	172	207
	P	BAR (C)	2	-	-	7	-	-	17	34	69	-	-	172	207
	S	BAR (G)	2	-	-	7	-	-	17	34	69	-	-	172	207
	F	KPa (A)	207	-	-	-	-	-	-	-	-	-	-	-	-
	R	KPa (C)	207	-	-	-	-	-	-	-	-	-	-	-	-
	K	KPa (G)	207	-	-	-	-	-	-	-	-	-	-	-	-
	E	MPa (A)	.29	-	-	.69	-	-	1.7	3.4	6.9	-	-	17.2	20.7
	R	MPa (C)	-	-	-	.69	1	-	1.7	3.4	6.9	-	-	17.2	20.7
	D	MPa (G)	-	-	-	.69	-	-	1.7	3.4	6.9	-	-	17.2	20.7
	T	Torr (T)	-	-	-	-	-	-	-	-	1000	-	1500	-	-

(A)=Absolute, (C)=Compound, (G)=Gauge

Code Description	Code Option	Option Description	GFF	GFD	GIF	GID
V. Output	3	0.00 to 10.00 Vdc	X	X	X	X
	4	4 to 20 mA	X	X	X	X
	5	0.05 to 5.05 Vdc	X	X	X	X
	6	0.2 to 5.2 Vdc	X	X	X	X
	7	2 to 10 Vdc	X	X	X	X
	8	No signal output (GI model with display only)			X	X
VI. Electrical Connection	A	4 ft Pigtail with AMP® Connector (3-pin) - Current Output Only	X	X	X	X
	B	Bendix® Connector	X	X		
	D	15 Pin HD D-Sub Connector - Voltage Output Only	X	X		
	E	9 inch Pigtail with 15 Pin HD D-Sub Connector - Voltage Output Only	X	X	X	X
	G	4 ft Pigtail with AMP® Connector (4-pin) - Voltage Output Only	X	X	X	X
	H	6 inch Pigtail with Molex® Connector	X	X	X	X
	K	9-pin D-Sub - Voltage Output Only	X	X		
	L	10 ft (3m) Pigtail	X	X	X	X
	M	5 inch (0.127m) Pigtail with AMP® Connector (4-pin) - Voltage Output Only	X	X	X	X
	N	16.5 ft cable with Bendix® Type (Bayonet)	X	X	X	X
	P	6 ft (2m) Pigtail	X	X	X	X
	Q	12" Pigtail with M12 Connector	X	X	X	X
	R	8 inch Pigtail with AMP® Connector (4-pin)	X	X	X	X
	S	2m (79") Pigtail with 9-Pin D Connector - Current Output Only	X	X	X	X
	V	18 inch Pigtail with 6-pin Molex® Connector	X	X	X	X
	W	2 inch Pigtail with AMP® Connector (4-pin) plus 1" strain relief ($\pm 1/8"$) at 20° angle from bottom dead center			X	X
	Z	36 inch Pigtail with Bendix® Connector (Bayonet)	X	X	X	X
	3	8 inch Pigtail with AMP® Connector (4-pin) - Voltage Output Only	X	X	X	X
VII. Fittings	4S*	Tube Weld Stub 1/4" O.D.		X		
	CD	Surface Mount, 1.125" C-Seal, 0.5" longer gland		X		X
	CH	Surface Mount, 1.5" C-Seal, High Flow K1H		X		
	CS	Surface Mount, 1.125" C-Seal, Standard		X		X
	NT	1/4" NPT		X		
	SC	Surface Mount, 1.5" C-Seal		X		
	SF	Face Seal, swivel female 1/4"	X	X	X	X
	SM	Face Seal, swivel male 1/4"	X	X	X	X

* Tube stub (4S) is not suitable for compression joint.

Sample Model Code

I	II	III	IV	V	VI	VII
GF	D	02	C	4	P	SF

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 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.

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