BROOKS® INSTRUMENT

Beyond Measure

SolidSense II® GR/GP Series

High-stability, UHP pressure transducers with rotatable display and programmable switches for system interlock and automation applications

SolidSense II® GR/GP Series pressure transducers are designed to address a broader range of applications. The combination of optimum design and high quality materials improves both signal stability and reliability for your pressure measurement requirements.

The unique mechanical design of the GR/GP Series employs robust sensing technology proven for ultra-high purity applications. The digital architecture of the GR/GP Series enables automated software driven calibration and a wide-range of thermal compensation routines, unlike the passive compensation used in competitive devices. This enhances measurement repeatability regardless of changes to the operational environment.

The new GR/GP Series combines an angled rotatable display with two configurable switches while maintaining the consistent stability and reliability that Brooks Instrument's SolidSense II® pressure transducers are known for.

Features	Benefits
Option of Two Configurable Switches with Indicators	Enables system pressure interlocks and automation
Integrated Angled Continuous Rotatable Display	Optional viewing from both top and sides
Zero Adjustment Through Display Keypad	Easily accessible with a touch of a button
Optimal Slim Diameter or Compact Height Footprints	Fits in small profile spaces

Product Specifications

	Description
Performance	
Full Scale Pressure Range	10 - 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
Mechanical	
Housing	Stainless Steel
Display Housing	Glass-filled Nylon 6
Display Faceplate	Polycarbonate
Wetted Parts	316L stainless steel, SEMI F20 fitting and hastelloy C-276 sensor
Wetted Surface Finish	Compliant with SEMI F19 (316L)
Wetted Internal Volume	0.1 cubic inch for GPD and GRD, .15 cubic inch for GRF
Approximate Weight	Varies with fitting 5-9.5 oz + cable 0.4 oz/ft
Gauge Reference Pressure Vent	Via cable and connectors
Electrical	
Supply Current	Max. 30 mA for voltage output configurations, max 50 mA for current output configurations
Power Requirements	12 - 32 Vdc for all output configurations except 13 - 32 Vdc for 0 - 10 Vdc output
Display Type	7-Segment red LED, up/down buttons for programming
Display Digits	-xxx to xxxx
Display Polarity	Automatic (-) display
Over Pressure Reading Trigger	110% F.S. ±5% F.S. (Display reading: 1---)
Display Accuracy	±0.25% of reading ±1 count for PSI, MPA, BAR ±0.25% of reading ±5 count for KPA, TORR Note: Reading is analog output
Rotatable Display	330° Continuous rotation with friction retaining force
Character Height	0.30" (7.62mm)
Programmable Switches	2 Switches solid state with status indicator LEDs on Display 60 VDC max, 1A max combined, can be wired for On/Off, NPN or PNP by Customer
Switch Unpowered Condition	Always OPEN
Switch Powered Condition	Per setting in Menu: NO or NC. Factory default is NO
Zero	Via SET0 function in display menu
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
Approvals and Compliance	
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

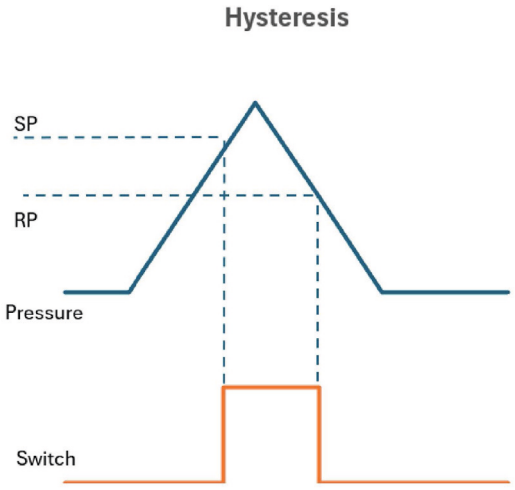
Product Specifications

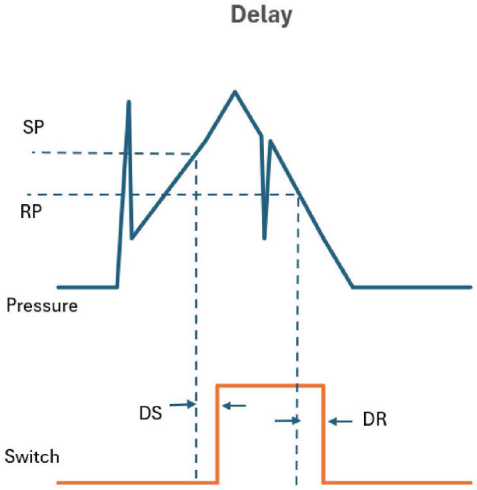
Display Digit Rule

Pressure Unit	Max Pressure	Decimal Point	Examples
PSI	4000	0 OR 1	-12.3, 001.2, 012.3, 123.4, 1234
TORR	1500	N/A	-001, 0001, 0012, 0123, 1234
KPA	9999	N/A	-012, 0001, 0012, 0123, 1234
BAR	276	1 OR 2	-0.12, 00.01, 00.12, 01.23, 12.34, 123.4
MPA	27.6	2 OR 3	-0.10, 0.001, 0.012, 0.123, 1.234, 12.34
Overpressure: When pressure is 110% F.S. (±5% F.S.) or higher, display steady 1---			

Switch Parameters	Description	Setting Range	STD Factory Setting
SET0	Device Zero Function, set analog output and display to base pressure reading. For devices with absolute and compound ranges, users may not be able to pump to very low vacuum but can initiate a zeroing procedure at a predetermined pressure of up to 5.00%F.S. (defined by the user in the SET0 submenu). This action will calibrate the device to reflect the accurate base pressure reading.	Limited to ideal zero ±5%F.S.	00.00
OUT1 / OUT2	Switching function, switching output (1 or 2)	OFF = always off ON = always on NO = normally open NC = normally closed	NO = Normally Open
SP1 / SP2	Ascending pressure switch point, switching output (1 or 2), in percentage of full scale range, 0.5~100.0, one decimal point	Min: Start of measuring range +0.5% Max: End of measuring range	60.0 (=60% F.S.)
RP1 / RP2	Descending pressure reset point, switching output (1 or 2), in percentage of full scale range 0.0~99.5, one decimal point	Min: Start of measuring range Max: SP1 / SP2 -0.5%	40.0 (=40% F.S.)
DS1 / DS2	Switch Delay Time for ascending pressure meeting SP1/SP2 setpoints for the DS1/DS2 duration without interruption. Purpose: to avoid switching during short duration pressure spike condition.	0 ... 50 sec	0 sec
DR1 / DR2	Switch Delay Time for descending pressure meeting RP1/RP2 setpoints for the DR1/DR2 duration without interruption. Purpose: to avoid switching during short duration pressure spike condition.	0 ... 50 sec	0 sec
UNIT	Switching pressure units	PSI/TORR/KPA/MPA/BAR	Per product label
LOAD	Load factory parameter settings for SP, RP, DS, DR, OUT, DSU, UNIT; does not affect pressure signal output	Yes / No	NOT APPLICABLE
Display Over Range (>9999): Flash 9999 0.5 Sec on/off when pressure unit selcted is too small and pressure is below 110% F.S. (±5% F.S.)			

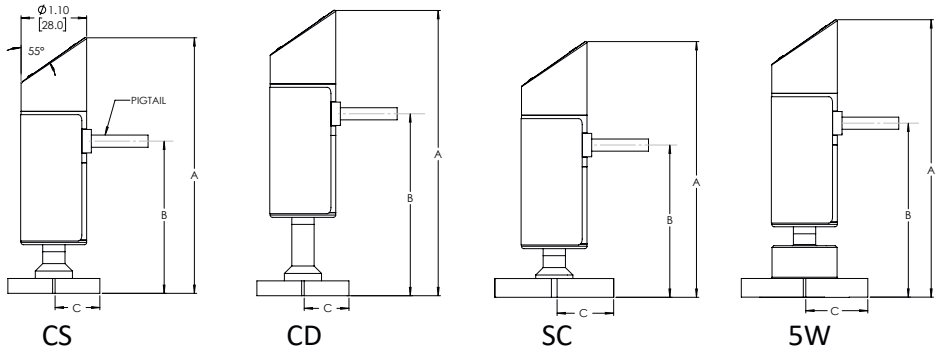
Examples of pressure % F.S. used in SET0, SP1/SP2, RP1/RP2:
For F.S. 0~200 psia: 0% F.S. = 0 psia, 50% F.S. =100 psia, 100% F.S. = 200 psia
For F.S. -14.7~30 psig: 0% F.S. = -14.7 psig, 50% F.S.=7.65 psig, 100% F.S. = 30 psig





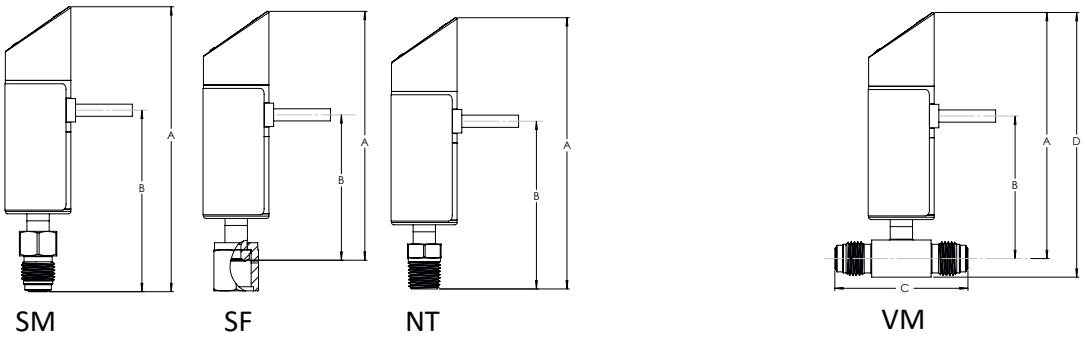
Product Dimensions

GRD Downport Configurations



GRD Face Seal Configurations (All Dimensions to Face Seal Gland)

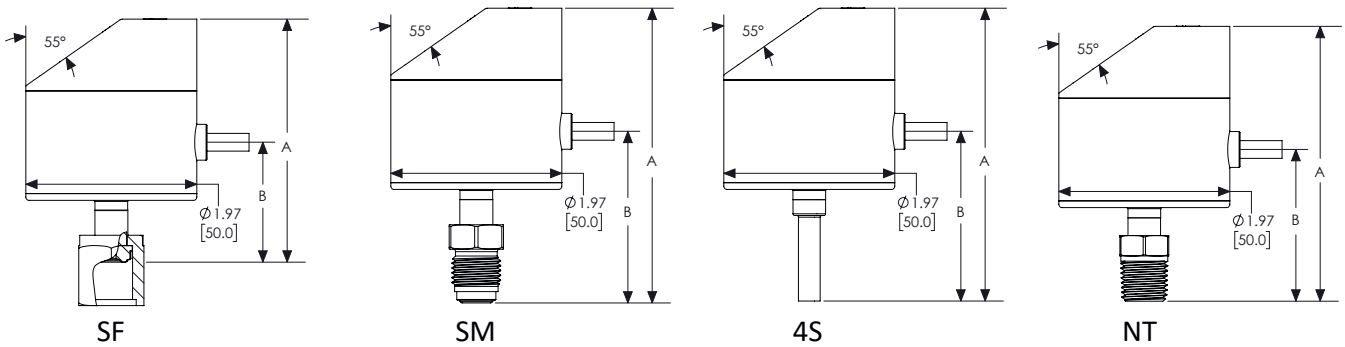
GRF Flow Through Configurations



GRx Dimension Table

Fitting Option Code	Seal Type	Dim. A	Dim. B	Dim. C	Dim. D
CS	1.125" C-Seal	4.30in [109.3mm]	2.56in [65.0mm]	1.125in [28.6mm]	-
CD	Elongated 1.125" C-Seal	4.80in [122.0mm]	3.06in [77.8mm]	1.125in [28.6mm]	-
SC	1.5" C-Seal	4.30in [109.3mm]	2.56in [65.0mm]	1.48in [37.6mm]	-
5W	1.5" W-Seal	4.67in [118.6mm]	2.93in [74.4mm]	1.54in [39.0mm]	-
SF	1/4" Face Seal Swivel, Female	4.20in [106.8mm]	2.46in [62.5mm]	-	-
SM	1/4" Face Seal Swivel, Male	4.79in [121.8mm]	3.05in [77.5mm]	-	-
VM	1/4" Face Seal Fixed, Male Flow Thru	4.14in [105.2mm]	2.40in [61.0mm]	2.24in [57.0mm]	4.45in [113.0mm]
NT	1/4" NPT Male	4.56in [115.8mm]	2.82in [71.6mm]	-	-

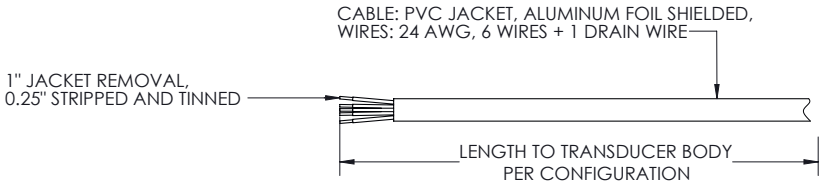
GPD Downport Configurations



GPD Dimension Table

Fitting Option Code	Seal Type	Dim. A	Dim. B
SF	1/4" Face Seal Swivel, Female	2.77in [70.2mm]	1.39in [35.3mm]
SM	1/4" Face Seal Swivel, Male	3.36in [85.2mm]	1.98in [50.3mm]
4S	1/4" Tube Stub	3.34in [84.6mm]	1.96in [49.8mm]
NT	1/4" NPT Male	3.13in [79.4mm]	0.75in [44.5mm]

TYPE P
PIGTAIL



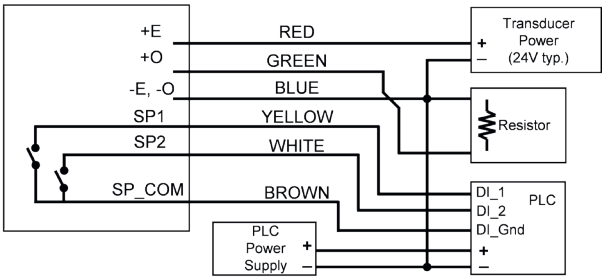
Electrical Connection Wiring (POS 10-13)

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

Output Code	+ Supply (+E)	+ Output (+O)	- Supply (-E)	- Output (-O)	SP1	SP2	SP COMMON	TRIM WIRES
1	RED	WHITE	GREEN	BROWN	-	-	-	BLUE, YELLOW
2, 3, 5, 6, 7, 9, S, P	RED	GREEN	BLUE		YELLOW	WHITE	BROWN	N/A
4	RED	-	WHITE	-	-	-	-	GREEN, BROWN, BLUE, YELLOW
0	RED	-	GREEN	-	-	-	-	WHITE, BROWN, BLUE, YELLOW

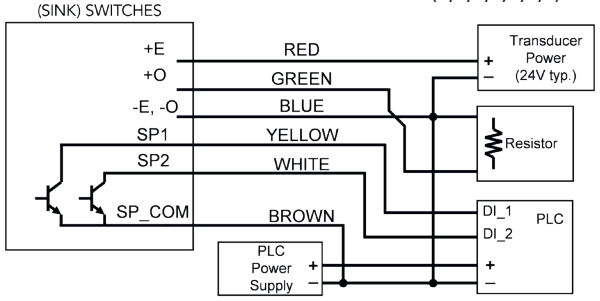
GP, GR:
3-WIRE
VOLTAGE OUTPUT AND RELAYS
(OPEN OR CLOSED)

OUTPUT CODES (2,3,5,6,7,8,9)



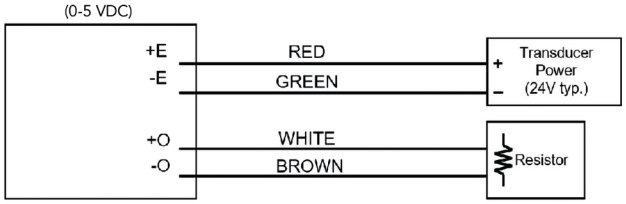
GP, GR:
3-WIRE
VOLTAGE OUTPUT AND NPN
(SINK) SWITCHES

OUTPUT CODES (2,3,5,6,7,8,9)



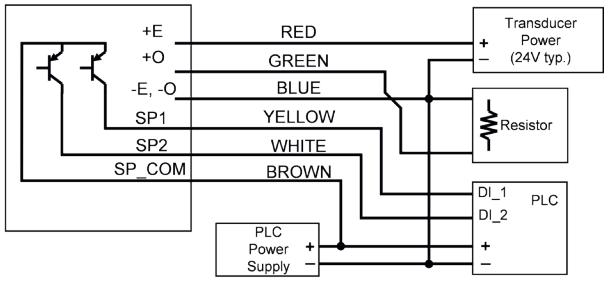
GP:
4-WIRE VOLTAGE OUTPUT
(0-5 VDC)

OUTPUT CODE (1)



GP, GR:
3-WIRE
VOLTAGE OUTPUT AND PNP
(SOURCE) SWITCHES

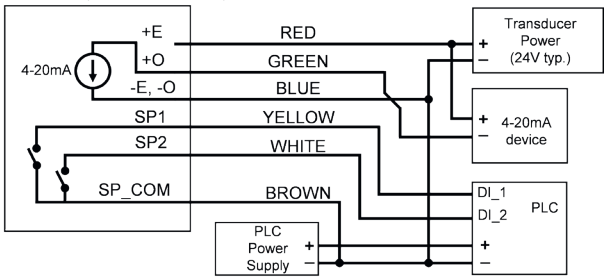
OUTPUT CODES (2,3,5,6,7,8,9)



Wiring Information

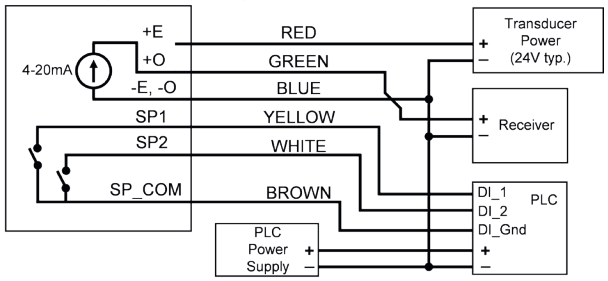
GP, GR:
3-WIRE CURRENT SINK OUTPUT AND RELAYS (OPEN OR CLOSED)

OUTPUT CODE (S)



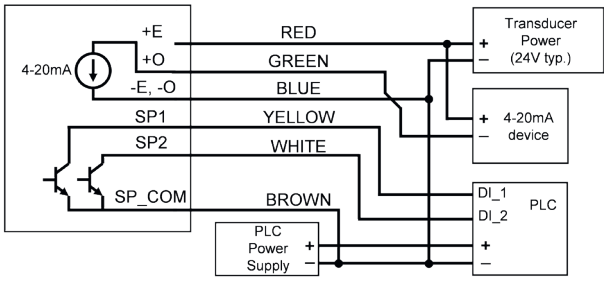
GP, GR:
3-WIRE CURRENT SOURCE OUTPUT AND RELAYS (OPEN OR CLOSED)

OUTPUT CODE (P)



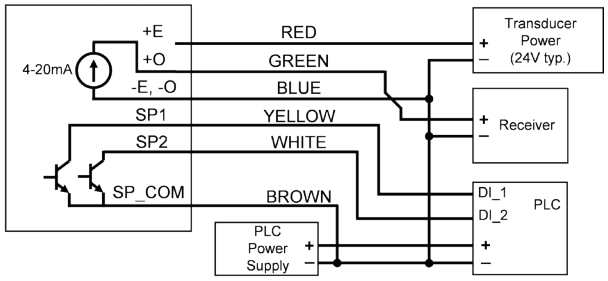
GP, GR:
3-WIRE CURRENT SINK OUTPUT AND NPN (SINK) SWITCHES

OUTPUT CODE (S)



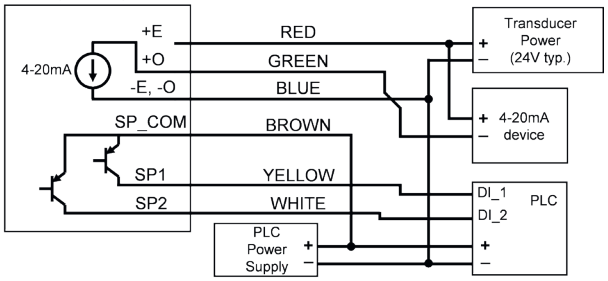
GP, GR:
3-WIRE CURRENT SOURCE OUTPUT AND NPN (SINK) SWITCHES

OUTPUT CODE (P)



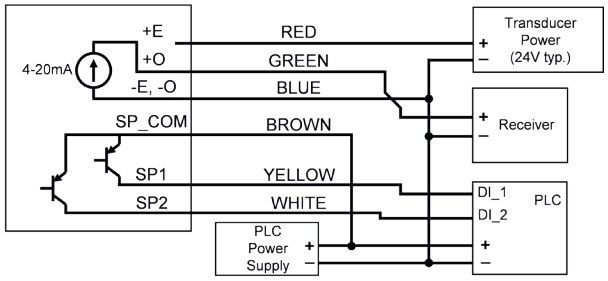
GP, GR:
3-WIRE CURRENT SINK OUTPUT AND PNP (SOURCE) SWITCHES

OUTPUT CODE (S)



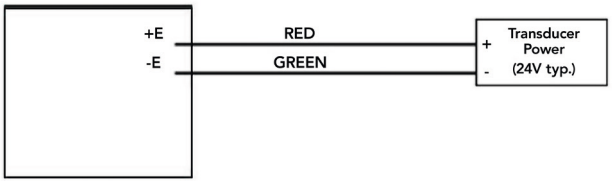
GP, GR:
3-WIRE CURRENT SOURCE OUTPUT AND PNP (SOURCE) SWITCHES

OUTPUT CODE (P)



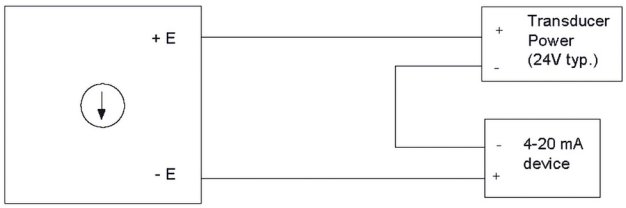
GP, GR:
DISPLAY ONLY, NO SIGNAL OUTPUT

OUTPUT CODE (0)



GP, GR:
2-WIRE CURRENT OUTPUT

OUTPUT CODE (4)



Model Code

Code Description	Code Option	Option Description	GRD	GRF	GPD
I. Base Model Code	GR	Pressure Transducer with Rotatable Display and Relays	X	X	
	GP	Pressure Transducer with Rotatable Display and Relays (Low height profile)			X
II. Body Type	D	Dead End	X		X
	F	Flow Through		X	
III. Pressure Range *Refer to Table 1 below for standard combinations and examples	.29	0.29	X	X	X
	002	2	X	X	X
	030	30	X	X	X
	100	100	X	X	X
	160	160	X	X	X
	200	200	X	X	X
	500	500	X	X	X
	1K0	1000	X	X	X
	1K5	1500	X	X	X
IV. Pressure Units (Full Scale Range) *Refer to Table 1 below for standard combinations and examples	P	Psi	X	X	X
	B	Bar	X	X	X
	K	KPA	X	X	X
	M	MPA	X	X	X
	T	Torr	X	X	X
V. Pressure Reference *Refer to Table 1 below for standard combinations and examples	A	Absolute	X	X	X
	C	Compound	X	X	X
	G	Gauge	X	X	X
VI. Output	1	4-Wire (True) 0-5 Vdc			X
	2	3-Wire (True) 0-5 Vdc	X	X	X
	3	3-Wire (True) 0-10 Vdc	X	X	X
	4	2-Wire 4-20 mA (No Switches)	X	X	X
	5	3-Wire 0.05-5.05 Vdc	X	X	X
	6	3-Wire 0.2-5.2 Vdc	X	X	X
	7	3-Wire 2-10 Vdc	X	X	X
	8	3-Wire 1-5 Vdc	X	X	X
	9	3-Wire 1-10 Vdc	X	X	X
	S	4-20 mA Sink	X	X	X
	P	4-20 mA Source	X	X	X
	0	No output (for STD config)	X	X	X

Model Code

Code Description	Code Option	Option Description	GRD	GRF	GPD
VII. Electrical Connection *Refer to examples in Table 2 below	P	Pigtail	X	X	X
VIII. Electrical Cable Length *Refer to examples in Table 2 below	.5	0.5	X	X	X
	02	2	X	X	X
	06	6	X	X	X
	12	12	X	X	X
	XX	Customer defined	X	X	X
IX. Electrical Cable Length Units *Refer to examples in Table 2 below	I	Inches	X	X	X
	F	Feet	X	X	X
	M	Meters	X	X	X
X. Fittings	CS	1.125" C-Seal	X	-	-
	CD	Elongated 1.125" C-Seal	X	-	-
	SC	1.5" C-Seal	X	-	-
	SF	1/4" Face Seal Swivel, Female	X	-	X
	SM	1/4" Face Seal Swivel, Male	X	-	X
	VM	1/4" Face Seal Fixed, Male (Flow Through GRF Model Only)	-	X	-
	4S	1/4" Tube Stub	X	-	X
	4T	1/4" Tube Stub, Duncan T	-	X	-
	5W	1.5" W-Seal	X	-	-
	NT	1/4" NPT, Male	X	-	X

Sample Model Code

I	II	III	IV	V	VI	VII	VIII	IX	X
GR	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**	**160**	**250**	**500**	**1K0**	**1K5**	**2K5**	**3K0**
	PA	30	-	60	100	-	160	250	500	1000	-	2500	3000
	PC	30	45	60	100	150	160	250	500	1000	1500	2500	3000
	PG	30	-	60	100	-	160	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	VIII. Electrical Connection	IX. Electrical Cable Length		X. Electrical Cable Length Unit
6" Pigtail	P	0	6	I
12" Pigtail	P	1	2	I
2' Pigtail	P	0	2	F
0.5m Pigtail	P	.	5	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 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.

Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

Data-Sheet-SolidSense-II-GR-GP-EN/2025-10

Global Headquarters
Brooks Instrument
407 West Vine Street
Hatfield, PA
19440-0903 USA

Toll-Free (USA): 888-554-FLOW
T: 215-362-3500
BrooksAM@BrooksInstrument.com

A list of all Brooks Instrument locations and contact details can be found at www.BrooksInstrument.com

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