

4000 Series – High Performance, Long Term Stability Pressure Transducers

- ▶ Gauge, Sealed, Absolute, and Differential Pressure Models
- ▶ Submersible, High Temperature and Weather Proof Enclosures
- ▶ High Stability Achieved by Sputtered Sensing Element

The 4000 series provides exceptional levels of stability and other performance specifications in a wide variety of enclosures from submersible to differential styles. By using a sputtered sensing element, which achieves a molecular fusion of a strain gauge material, an insulating material, and the 17-4 PH ss sensing element, the 4000 series provides the most stable sensor construction possible. These sputtered sensors are packaged for harsh applications requiring long term service where precise laboratory type measurements are required.

Also in the 4000 series is a range of high performance amplified sensors with voltage and current outputs. These laboratory specification sensors utilize the same thin film sensor as 4000.

Specifications

Input		
Pressure Range	4000 series: 1 to 690 bar; 4010 series: 15 to 10,000 psi	
Proof Pressure	2 x Full Scale (FS) (1.5 x FS for Inconel ports)	
Burst Pressure	>35 x FS ≤ 150 psi (10 bar) ranges >15 x FS ≤ 1500 psi (100 bar) ranges >8 FS ≤ 10,000 psi (690 bar) ranges	
Fatigue Life	3 million FS cycles	
Common Line Pressure	max. 850 psia absolute (60 bar) differential units only	
Performance		
Output*	30mV ±1% (certificate supplied) (4010, 25 to 33 mV)	
Supply Voltage (Vs)	10 VDC Regulated (15 VDC max)	
Long Term Drift	0.06% per year non-cumulative	
Performance Code	Accuracy typical	Thermal Error typical
J	0.1 % span	1.2 % span
K	0.1 % span	0.6 % span
L	0.08 % span	0.6 % span
M	0.08 % span	0.3 % span
Compensated Temperatures	-65°F to +250°F (-54°C to +120°C)	
Operating Temperatures	-65°F to +275°F (-54°C to +135°C) for twist lock conn. "C" -65°F to +250°F (-54°C to +120°C) for cable units "D" -4°F to +122°F (-20°C to +50°C) for submersible unit "M"	
Zero Tolerance	0 mV +/- 1 mV for performance codes J & K 0 mV +/- 0.6 mV for performance codes L & M	
Bridge Resistance	2200 to 5250 ohms	
Mechanical Configuration		
Pressure Port	See ordering chart	
Wetted Parts	17-4 PH ss (optional Inconel) [17-4 PH and 15-7 Mo Stainless Steel ≤ 30 psi (1.6 bar)] Differential: dry non corrosive gas only on reference port	
Electrical Connection	See ordering chart	
Enclosure	321 ss case IP40 for elec. Code "C" gauge datum IP65 for elec. Code "C" Absolute or Sealed Datum IP66 (weatherproof) for elec. code "D" IP68 (submersible) for elec. code "M"	
Vibration	35g peak sinusoidal, 5 to 2000 Hz	
Shock	Withstands free fall to EIC 68-2-32 proc 1	
Approvals	CE	
Weight	150 grams max (excluding cable)	

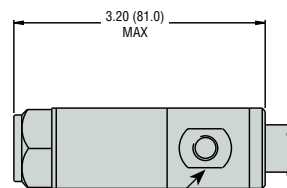
Note:
* Inconel 30 psi (2.5 bar) range output is 25 mV ±1%



Dimensions in. (mm)

Differential

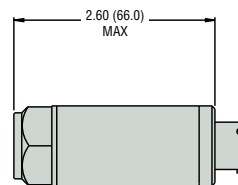
Code C



Reference port G1/8" internal to BS2779

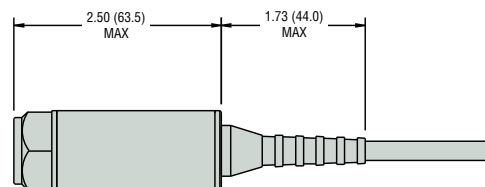
Absolute and Gauge

Code C



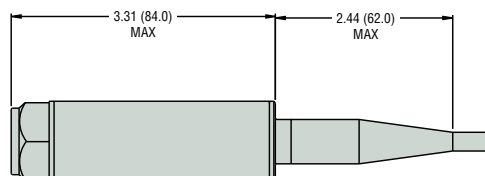
Absolute and Gauge

Code D



Absolute and Gauge

Code M



Maximum diameter 1" (25.7 mm)

Order from: 7 5 '6 f] [g 7 ca dUbm' 622 Mary Street; Suite 101 - Warminster, PA 18974

Phone: 267-673-8117 - 800-352-6265 - Fax: 267-673-8118; E-Mail: Sales@cabriggs.com - www.cabriggs.com

4000 Series / p1of2 / 3-APR-14

How to Order

Use the **bold** characters from the chart below to construct a product code

SELECT: **4000** **K** **G** **B10** **00** **D** **2** **D** **J**

1. **4000** bar units, **4010** psi units, **40AB** seawater units**
2. Bridge Resistance: **K** is 3500 ohms*
3. Pressure Datum: **G** gauge; **A** absolute; **S** sealed; **U** uni-directional differential *
4. Insert pressure range code from table below
5. Pressure Port see chart
6. Electrical Connection **C** Fixed plug size 10-6, mate sold separately part # 499532-0006
D Weatherproof Cable IP 66
M Immersible Moulded Cable IP68 (max depth 200 M H₂O)
7. Approvals/Protection **2** CE
8. Cable Length in meters (requires electrical connection to be cable codes D or M)
U no cable **E** 3 **G** 10 **J** 20 **L** 30 **N** 50 **Q** 100 **S** 150
D 1 **F** 5 **H** 15 **K** 25 **M** 40 **P** 75 **R** 125
9. Static/Thermal Performance (Typical)
J 0.1%/1.2%; **K** 0.1%/0.6%; **L** 0.08%/0.6%; **M** 0.08%/0.3%

* Differential datum units are available in electrical code "C" only and performance codes either "L" or "M" only.
** 40AB seawater sensors are a hastelloy case and require Inconel pressure ports.

Pressure Range Code

4000 Model Bar Ranges	Range Code	Gauge (G) Absolute (A) Sealed (S) Differential (U)
0 to 1	A10	G, A, U
0 to 1.6	A16	G, A, U
0 to 2.5	A25	G, A, U
0 to 4	A40	G, A, U
0 to 6	A60	G, A, U
0 to 10	B10	G, A, U, S
0 to 16	B16	G, A, S
0 to 25	B25	G, A, S
0 to 40	B40	G, A, S
0 to 60	B60	G, A, S
0 to 100	C10	G, A, S
0 to 160	C16	G, A, S
0 to 250	C25	G, A, S
0 to 400	C40	G, A, S
0 to 600	C60	G, A, S*
0 to 690	C69	G, A, S*

4010 Model PSI Ranges	Range Code	Gauge (G) Absolute (A) Sealed (S) Differential (U)
0 to 15	F15	G, A, U
0 to 30	F30	G, A, U
0 to 60	F60	G, A, U
0 to 100	G10	G, A, U
0 to 150	G15	G, A, U
0 to 300	G30	G, A, U, S
0 to 500	G50	G, A, S
0 to 1000	H10	G, A, S
0 to 1500	H15	G, A, S
0 to 3000	H30	G, A, S
0 to 6000	H60	G, A, S
0 to 10000	J10	G, A, S*

* Diaphragm and internal port Inconel, external adaptors are available in stainless steel

Pressure Ports - See Page H-50 for Dimensions

Codes		Description
SS	Inconel	
00	OK	G 1/4 internal
AO	AK	G 1/4 AT external
KO	KK	7/16-20 UNF-3A external
MO	MK	M14 x 1.5 external
PO	PK	G1/2 AT external
BO	BK	1/4-18 NPT external
GO	GK	1/2-14 NPT external
SO	SK	7/16-20 UNJF-3A, MS 33656F4
10	10	Plastic nosecone
20	20	Plastic nosecone with restrictor
30	30	Sink weight nose cone

Differential Units	
OD	G1/4 internal ss, G1/8 internal ss
OL	G1/4 internal Inconel, G1/8 internal ss

Electrical Connections

Electrical Connection Code	4000K Units					
	IN+	OUT+	OUT-	IN-	Case Earth	
C	"10-6 Bayonet"	A	B	C/F	D/E	—
D	Weatherproof cable	Red	Yellow	Blue	White	Screen
M	IP 68 cable	Red	Yellow	Blue	White	Screen

4700 Series – High Performance, High Stability, with 5:1 Turndown Capability Industrial Transmitters

- ▶ Gauge, Sealed and Absolute Models
- ▶ Submersible, General Purpose and Wash Down Enclosures
- ▶ IS Models

The 4700 series provides precise laboratory type measurements in a rugged industrial package complete with turndown capabilities. Exceptional levels of stability and other performance specifications are achieved by using a sputtered sensing element, which achieves a molecular fusion of a strain gauge material, an insulating material, and the 17-4 PH ss sensing element. Sputtered or thin film technology provides years of worry free measurements under demanding real world conditions.



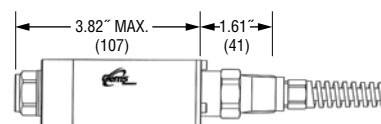
Specifications

Input	
Pressure Range	4710, 10 to 10,000 psi; 4700, 1 bar to 690 bar
Proof Pressure	2 x Full Scale (FS) for Stainless Steel Units 1.5 x FS for Inconel Units
Burst Pressure	>35 x FS ≤ 10 bar ranges >15 x FS ≤ 100 bar ranges >8 FS ≤ 690 bar ranges
Fatigue Life	3 million FS cycles
Performance	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	9.5 to 40 VDC (Ex IIG: 9.5 to 28 VDC)
Supply Voltage Sensitivity	0.005% of max. span/Volt
Long Term Drift	0.1% of max span per year non-cumulative
Accuracy	0.1 % FS typical
Thermal Error (typical)	0.8% of max span for performance code E 0.5% of max span for performance code F
Compensated Temperatures	-13°F to +167°F (-25°C to +75°C)
Operating Temperatures	-13°F to +185°F (-25°C to +85°C) elec. conn. code C, G & L -4°F to +122°F (-20°C to +50°C) elec. conn. code M & 3 -22°F to +212°F (-30°C to +100°C) process/media
Zero Tolerance	0.1% FS, typical
Span Tolerance	0.1% FS, typical
Zero Adjustment	±10% (100% at factory) by potentiometer
Span Adjustment	25% to 125% of span by potentiometer
Max. Loop Resistance	(Vs-8) x 50 ohms
Mechanical Configuration	
Pressure Port	see ordering chart
Wetted Parts	17-4 PH ss (optional Inconel) [17-4 PH and 15-7 Mo Stainless Steel ≤ 1.6 bar (30 Psi)]
Electrical Connection	see ordering chart
Enclosure	318 Duplex ss, 17-4 PH ss and glass filled polyester IP40 for gauge datum & electrical conn. code C IP65 for absolute and sealed datum & elec. conn. code C IP65 for electrical connection code G IP68 for electrical connection code F
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.05% FS/g for 15 psi (1 bar) range decreasing logarithmically to 0.0001% FS/g for 10000 psi (690 bar) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE, Lloyds Register, optional Intrinsically Safe EEx ia IIC T4 per ATEX, (Quality Assurance Certificate Supplied), ABS Certified
Weight	approx. 305 g (additional; cable 75 grams/m)

Dimensions in. (mm)

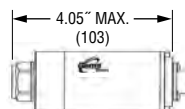
Max diameter 39mm, all models

Code 3



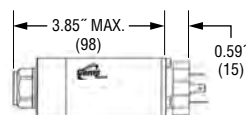
1/2 - 14 NPT conduit

Code C



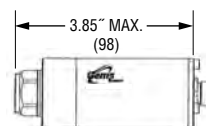
6 Pin Fixed Plug Size (10-6)

Code G



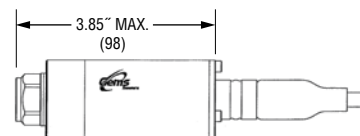
Fixed Plug to DIN 43650 Mate Supplied

Code L



5 Pin M12 x 1 Fixed Plug

Code M



Immersible IP68 to 200m WG

How to Order

Use the **bold** characters from the chart below to construct a product code

- SELECT:** **4700 B G B10 00 G 3 000 E**
- 4700** bar units, **4710** psi units
 - Output Response: **B** 4-20 mA Undamped
 - Pressure Datum: **G** gauge; **A** absolute
(For differential models and compound ranges consult sales)
 - Insert pressure range code from table below
 - Pressure Port see chart
 - Electrical Connection
C Fixed plug size 10-6, mate sold separately part # 499532-0006
G Fixed plug to DIN 43650 mating plug supplied; **L** M12 x 1 (5 pin)
M IP68 immersible cable; **3** 1/2-14 NPT Conduit
 - Approvals/Protection (For flame proof units see next page)
3 CE; **G** ATEX approved intrinsically safe EEIa IIC T4, Galvanic, isolators
 - Cable Length in meters (requires electrical connection code F)
000 No Cable; **001** 1 meter; **999** 999 meters
 - Static/Thermal Performance
E 0.2%/1.6%; **F** 0.2%/1.0%. 500mbar range performance code **E** only

Electrical Connections

Electrical Connection Code	Wiring		
	(+)	(-)	EARTH
G "DIN"	1	2	4
C "10-6 Bayonet"	A	B	E
F "IP 68 Cable"	R	BL	DRAIN

Cable Legend:
R = Red BL = Blue

4700 Model Bar Ranges	Range Code	Gauge (G)* Absolute (A)
0 to 500mb	N50	G, A
0 to 1	A10	G, A
0 to 1.6	A16	G, A
0 to 2.5	A25	G, A
0 to 4	A40	G, A
0 to 6	A60	G, A
0 to 10	B10	G, A
0 to 16	B16	G, A
0 to 25	B25	G, A
0 to 40	B40	G, A
0 to 60	B60	G, A
0 to 100	C10	G, A
0 to 160	C16	G, A
0 to 250	C25	G, A
0 to 400	C40	G, A
0 to 600	C60	G, A**
0 to 690	C69	G, A**

4710 Model PSI Ranges	Range Code	Gauge (G)* Absolute (A)
0 to 10	F10	G
0 to 15	F15	G, A
0 to 30	F30	G, A
0 to 60	F60	G, A
0 to 100	G10	G, A
0 to 150	G15	G, A
0 to 200	G20	G, A
0 to 300	G30	G, A
0 to 500	G50	G, A
0 to 1000	H10	G, A
0 to 1500	H15	G, A
0 to 3000	H30	G, A
0 to 5000	H50	G, A
0 to 6000	H60	G, A
0 to 10000	J60	G, A**

* For compound ranges please consult factory
** Inconel pressure port required.

Pressure Ports - See Page H-50 for Dimensions

Codes		Description
SS	Inconel	
OO	OK	G 1/4 internal
AO	AK	G 1/4 AT external
KO	KK	7/16-20 UNF 3A external
MO	MK	M14 x 1.5 external
PO	PK	G 1/2 AT external
BO	BK	1/4-18 NPT external
GO	GK	1/2-14 NPT external
SO	SK	7/16-20 UNJF external, MS 33656E4
Immersible		
10		Plastic nose cone
20		Nose cone with restrictor
30		Nose cone w/ss Sink Weight

PRESSURE TRANSDUCERS