Pressure Sensors

Gems Sensors

Welcome to Gems Sensors
Pressure Catalogue

This catalogue describes our best selling pressure sensors, from economical OEM to aerospace quality transducers we have the choice and variety of configurations for most applications. The catalogue is divided into sections, for each range of products, and includes special pages describing our immersible sensors. Dimensional drawings, specifications and photographs are included providing comprehensive technical information for designers and specifiers.

We want to make it as easy as possible for you to do business with Gems. This catalogue should provide you with all you need to know about a pressure transducer or transmitter and includes a section for accessories and additional information. Should you not find what you are looking for please do not hesitate to contact your nearest Gems Sales Office or Representative. A list of our Representatives can be found at the back of this catalogue.

We understand that some applications require a bespoke sensor. Our engineers are ready to offer comprehensive advice and, whether it is a special connector, a different label or a completely re-designed package, we can provide timely cost effective solutions.

Gems also manufactures pressure switches, level sensors, flow sensors, and tank sight level indicators some of which are illustrated on page 62. Many of these products are available ex stock through our express shipping services in Europe and North America. Please contact your sales office for full details.

For the last 40 years we have listened, and responded, to our customer needs, helping our OEM customers to maintain a competitive edge and, providing end users with reliable solutions to the most demanding pressure measuring problems.

The fastest way to more information:

...just complete the form below and fax it to your nearest sales office (address on back page)

From:

Name ..... Company .....

Department..... Street/PO Box .....

Post Code/City..... Telephone .....

Email ..... Fax .....

☐ I have the following application.....

.....

.....

.....

and I would like to talk with one of your sales engineers. Please call me (date/time) .....

Please send me more information on:

- ☐ Gems Electro Optic Level Switches
- ☐ Gems Multi Point Level Switches
- ☐ Gems Flow Switches
- ☐ Gems Single Point Level Switches
- ☐ Gems Flow Indicators
- ☐ Gems Pressure Switches

Contents

Selection Charts

Pressure Transducers/Transmitters

Description	Electrical Output				Performance		Temperature Range		Range (bar)		Approvals			GEMS P/No	Page
	mV	Voltage	4-20mA	Digital	static error	thermal error	compensated	operable	min	max	CE	IS	F/proof		
Compact OEM Transducer	20	✓	✓		0.20%	2%	-20 to +100°C	-40 to +125°C	16	2200	✓			1000	20
Psibar Pressure Transmitter		✓	✓		0.50%	2%	-20 to +80°C	-40 to +125°C	800mb	400	✓			12/1600	11
Hygienic Flush Mount		✓	✓		0.25%	1%	-20 to +80°C	-25 to +85°C	0.1	40	✓	✓		1700	34
Screwed Flush Mount Pressure Transmitter		✓	✓		0.25%	2%	-20 to +80°C	-25 to +85°C	1	400	✓			1701	36
Fixed Range General		✓	✓		0.25%	1%	0 to 70°C	-25 to 85°C	40mb	1 bar	✓	✓		1702	38
CVD Universal Transducers	100	✓	✓		0.25%	1.50%	-20 to +80°C	-40 to +125°C	500mb	400	✓			22/2600....A	5
Improved Spec Transducer	100	✓	✓		0.15%	1%	-20 to +80°C	-40 to +125°C	500mb	400	✓			22/2600 B	5
I.S. Transmitter			✓		0.25%	1.5%	-20 to +80°C	-40 to +125°C	500mb	400	✓	✓		22/26IC....A	8
Improved Spec I.S. Transmitter			✓		0.15%	1%	-20 to +80°C	-40 to +125°C	500mb	400	✓	✓		22IC....B	8
Slim line Borehole Transmitter	100	✓	✓		0.25%	0.50%	-10 to +50°C	-40 to +80°C	4mwg	200mwg	✓			2400	46
High Performance Industrial Transmitter		✓	✓		0.10%	1%	-30 to +100°C	-40 to +125°C	1	400	✓			2800....A	13
High Performance IS Transmitter		✓	✓		0.1%	1%	-30 to +100°C	-40 to +125°C	1	400	✓	✓		28IC	16
HyMap Pressure Transmitter		✓	✓		0.15%	1.5%	-40 to +125°C	-40 to +125°C	50	700	✓			3000B	22
High Performance Transducers	30				0.10%	1%	-54 to +120°C	-54 to +135°C	1	690	✓			4000K....J	24
High Performance Transducers	30				0.10%	0.60%	-54 to +120°C	-54 to +135°C	1	690	✓			4000K....K	24
High Performance Transducers	30				0.08%	0.60%	-54 to +120°C	-54 to +135°C	1	690	✓			4000K....L	24
High Performance Transducers	30				0.08%	0.30%	-54 to +120°C	-54 to +135°C	1	690	✓			4000K....M	24
High Temperature Transducers	30				0.10%	2%	-54 to +200°C	-54 to +230°C	1	690	✓			4000L	26
Explosion Proof Transmitter			✓		0.10%	0.80%	-25 to +75°C	-25 to +85°C	6	690	✓		✓	4264B	30
High Performance Rangeable Transmitter			✓		0.10%	0.80%	-25 to +75°C	-30 to +100°C	250mb	690	✓	✓		4700B....E	28
High Performance Rangeable Transmitter			✓		0.10%	0.50%	-25 to +75°C	-30 to +100°C	180mb	690	✓	✓		4700B....F	28
Low Range Rangeable Transmitter		✓	✓		0.25%	2.00%	-20 to +60°C	-40 to +100°C	25mbar	1	✓			5000	40
Low Range Differential		✓	✓		1%	5%	-18 to +65°C	-18 to +65°C	100 pascals	5000 pascals	✓			5266	42
Rangeable Industrial Transmitter			✓		0.15%	1%	-20 to +80°C	-20 to +85°C	250mb	400	✓	✓		6700B	18
Digital Output Transmitter				✓	0.10%	0.2%	-40 to 85°C	-40 to 85°C	1	690	✓			9000	32
Rangeable Level Transmitter			✓		0.5%	0.1%	-5 to 45°C	-25 to 70°C	4mWG	100mWG	✓			9300	47
SDI-12 Groundwater Transmitter			✓	✓	0.5%	0.1%	-5 to 45°C	-25 to 70°C	4mWG	100mWG	✓			9500	48
Differential Pressure Transmitter			✓		0.20%	1.50%	-20 to +100°C	-20 to +100°C	40mb	16	✓			GBD (differential)	61

Setra Transducers

Description	Electrical Output			Performance		Temperature Range		Range (bar)		Approvals			GEMS P/No	Page No.
	mV	Voltage	4-20mA	static error	thermal error	compensated	operable	min	max	CE	IS	F/proof		
Low Differential Pressure Transducers		✓	✓	1%	3%	-18 to +65C	-18 to +65C	0.25/ ± 0.1	100/±50	✓			265	54
Very Low Range Differential Transducer		✓	✓	1%	5%	5 to +65C	-18 to +65C	0.01/±0.05	100/±50	✓			267	56
Sanitary Pressure Transducer		✓	✓	0.20%	3%	-7 to +80C	-40 to +125C	1 psi	100 psi	✓			290	58
Wet/Wet Differential Pressure Transducer		✓	✓	0.25%	2.5%	-1 to +65C	-18 to +80C	1/±0.5	100/±50	✓			230	52
Low Range Industrial OEM Transmitter		✓	✓	0.25%	3%	-20 to +80C	-40 to +85C	1 psi	10,000 psi	✓			209	50

2200 Series / 2600 Series - Universal Industrial Pressure Transducers

- Gauge, absolute, vacuum and compound pressure models available
- Submersible, general purpose and wash down enclosures
- High stability achieved by CVD sensing element
- Millivolt, voltage and current output models

The 2200 series features stability and accuracy in a variety of enclosure options. The 2600 series extends the packaging options via an all welded stainless steel back end for demanding submersible and industrial applications. The 2200 and the 2600 feature proven CVD sensing technology, an ASIC (amplified units), and modular packaging to provide a sensor line that fits most applications and can easily accommodate specials whilst not sacrificing high performance.

Specifications

Input	
Pressure Range	Vacuum to 400 bar G (6000 psi) 0 - 25 bar Absolute
Proof Pressure	2 x Full Scale (FS) (1.5 x Fs for 400 bar, >= 5000 psi)
Burst Pressure	>35 x FS <= 6 bar (100 psi);
	>20 x FS >=60 bar (1000 psi);
	>5 x FS <= 400 bar (6000 psi)
Fatigue Life	Designed for more than 100 million FS cycles
Performance	
Long Term Drift	0.2% FS/year (non-cumulative)
Accuracy	0.25 % FS typical (optional 0.15% FS)
Thermal Error	1.5% FS typical (optional 1% FS)
Compensated Temperatures	-20° to 80° C (-5° to 180° F)
Operating Temperatures	-40° to 125° C (-40° to 260° F) for elec. codes A, B, C, 1
	-20° to 80° C (-5° to 180° F) for elec. codes 2, D, G, 3
	-20° to 50° C (-5° to 125° F) for elec. codes F,M, P
Zero Tolerance	1% of span
Span Tolerance	1% of span
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See ordering chart
Enclosure	316 ss, 17-4 PH ss
	IP65 for elec. codes A, B, C, D, G,1, 2, 3
	IP67 for elec. code "F"
	IP68 for elec. code M
	IP30 for elec. code "3" with flying leads
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.032% FS/g for 1 bar (15 psi) range decreasing logorithmically to 0.0007% FS/g for 400 bar (6000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE
Weight	approx. 100 grams (additional cable; 75 g/m)

Individual Specifications

Millivolt Output units	
Output	100 mV +/-1 mV
Supply Voltage (Vs)	10 Vdc (15 Vdc max.) Regulated
Bridge resistance	2600-6000 ohms
Voltage Output units	
Output	See ordering chart
Supply Voltage (Vs)	1.5 Vdc above FS output to 35 Vdc @ 6 mA
Supply Voltage Sensitivity	0.01% FS/Volt
Min. Load Resistance	(FS output / 2) Kohms
Current Consumption	approx 6 mA at 7.5V output
Current Output units	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	24 Vdc, (7-35 Vdc) Above 100°C supply limited to 24 Vdc
Supply Voltage Sensitivity	0.01% FS/Volt
Max. Loop Resistance	(Vs-7) x 50 ohms

ISO 9001

Indicators and Accessories Pages 62-67

Connection Code			mV Units				Current units (4-20mA)			Voltage units			
			IN+	OUT+	OUT-	IN-	(+)	(-)	EARTH	IN+	COM	OUT+	EARTH
A, B, G	Industrial DIN	PIN	1	2	3	E	1	2	4	1	2	3	4
C	"10-6 Bayonet"	PIN	A	B	C	D	A	B	E	A	C	B	E
D	"cable"		R	Y	BL	G	R	BK	DRAIN	R	BK	W	DRAIN
F	"IP 67 cable"		R	Y	BL	G	R	BK	DRAIN	R	BK	W	DRAIN
M	"Immersible		R	Y	BL	W	R	BL	DRAIN	R	W	Y	DRAIN
1	"8-4 Bayonet"	PIN	A	B	C	D	A	B	D	A	C	B	D
2	"cable"		R	W	G	BK	R	BK	DRAIN	R	BK	W	DRAIN
3	"conduit & cable"		R	W	G	BK	R	BK	DRAIN	R	BK	W	DRAIN

Cable Legend:
R = Red
BL = Blue
BK = Black
W = White
G = Green
Y = Yellow

How to Order

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

2200 B G A60 01 A 3 U A

Series
2200 2600

Output
A - 100 mV
B - 4-20mA
C - 1-6V
D - 1-11V
H - 1-5V
J - 0.5-5.5V
R - 0-5V
S - 0-10V

Pressure Datum
A* - Absolute
G - Gauge
*Max absolute range is 25 bar.

Pressure Range - bar (Additional intermediate pressure ranges available. Please consult factory)

A10 - 0-1
A16 - 0-1.6
A25 - 0-2.5
A40 - 0-4
A60 - 0-6
B10 - 0-10
B16 - 0-16
B25 - 0-25
B40 - 0-40
B60 - 0-60
C10 - 0-100
C16 - 0-160
C25 - 0-250
C40 - 0-400
Vac = -1 bar
1A0 - Vac-0
1A6 - Vac-0.6
2A5 - Vac-1.5
4A0 - Vac-3
6A0 - Vac-5
1B0 - Vac-9
1B6 - Vac-15
2B5 - Vac-24
4B0 - Vac-39

Pressure Port
01 - G1/4 External
02 - 1/4-18 NPT External
03 - G1/2 Manometer
04 - 7/16-20UNF to SAE J514
05 - G1/4 Ext. Soft Seal
08 - 1/8-27 NPT External
09 - G1/8 Internal
00 - G1/4 Internal
0A - R1/4 External
19 - Nose Cone (2600 Only)
Others - Consult Factory

Electrical Connection
2200 Series
A - Industrial DIN Mating Connector Supplied
B - Industrial DIN Mating Connector Not Supplied
2 - Cable Nema 4 USA
D - Cable Weatherproof IP65 Europe
F - Cable Gland Metal IP67

2600 Series
C - Fixed Plug Size 10-6 Mating Plug Not Supplied
G - Fixed Plug To DIN 43650 Mating Plug Supplied
M - Immersible Max. depth 200 metres
1 - Fixed Plug Size 8-4 Mating Plug Not Supplied
3 - Conduit Connector 1/2NPT Ext. 1M Cable
Where electrical connection -**3** and cable length -**U** occur in part number, the unit will be supplied with flying leads (IP30)

Performance Code
Accuracy/Thermal
A - .25%/1.5%
B - .15%/1.0%

Cable Length
(Max length on 2200 G - 10 metres)
U - No Cable Fitted
D - 1 Metre
E - 3 Metres
F - 5 Metres
G - 10 Metres
H - 15 Metres
J - 20 Metres
K - 25 Metres
L - 30 Metres
M - 40 Metres
N - 50 Metres
P - 75 Metres
Q - 100 Metres
R - 125 Metres
S - 150 Metres

Code	Length (M)
4	170
5	200
6	225

Apparatus Protection
2 - mV Transient Protection CE Mark
3 - Amplified RFI Protected CE Mark

Indicators and Accessories Pages 62-67

Dimensions (in mm)

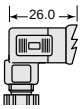
2200 Series

Industrial DIN Connector

Code "B"

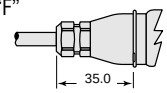
Industrial DIN Connector (mate supplied)

Code "A"



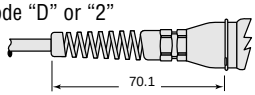
IP67 Cable

Code "F"



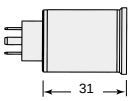
IP65 or NEMA4 Cable

Code "D" or "2"

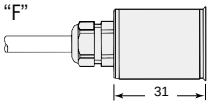


Micro DIN Connector

Code "T"



Code "F"

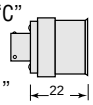


2600 Series

10-6 or 8-4 Mil-C Connector

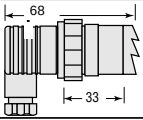
10-6 Code "C"

8-4 Code "1"



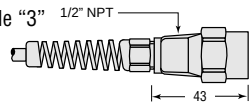
Large DIN 43650 Plug (mate supplied)

Code "G"

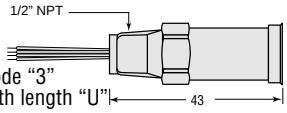


Conduit Connector with Cable

Code "3"

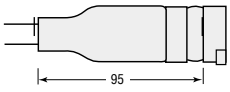


Conduit Connector with Flying Leads

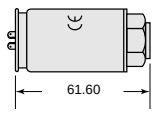


Immersible Cable

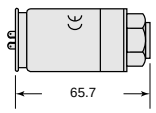
Code "M"



mV Gauge/Absolute Amplified Gauge

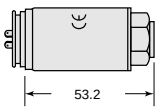


Amplified Absolute

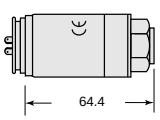


Maximum diameter 27.3 mm

mV Gauge/Absolute Amplified Gauge



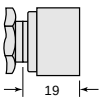
Amplified Absolute



Maximum diameter 27.3 mm

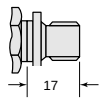
G 1/4 Internal

Code "00"



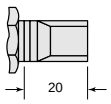
G 1/4 External

Code "01"



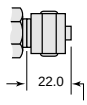
1/4 - 1/8 NPT

Code "02"



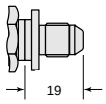
G 1/2 Manometer

Code "03"



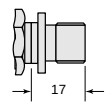
7/16-20 UNF-2A

Code "04"



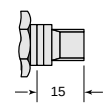
G 1/4 Soft Seal

Code "05"



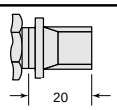
1/8-27 NPT

Code "08"



R 1/4

Code "0A"



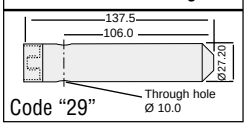
G 1/8 Internal

Code "09"

Nose Cone - Black Acetal

Code "19"

Nose Cone Sink Weight



Code "29"

Indicators and Accessories Pages 62-67

Others - Consult factory

22IC Series/26IC - Intrinsically Safe Industrial Pressure Transmitters

- Ex II 1G ; EEx ia IIC T4 (-20°C ≤Ta ≤ 75°C)
- Ranges from 0.5b to 400b gauge and 0 to 25 bar Absolute range
- Voltage and 2 wire 4-20mA output models
- All Stainless Steel wetted parts

Certified to the latest harmonised European standard (ATEX) the 22IC and 26IC Intrinsically safe pressure transmitters are designed to withstand the rigours of the most difficult applications with an all stainless steel construction, free from seals or oil barriers.

Incorporating Gems CVD Sensors and ASIC technology the 22IC and 26IC offer long term reliability, excellent performance and long term stability ensuring long service life without routine maintenance.

Available with a wide choice of pressure fittings units can be supplied to IP65 or fully immersible to IP68 200mwg and a variety of electrical connectors.

Ex II IG

CE

Specifications

Input	
Pressure Range	Vacuum to 400 bar G (6000 psi) 0-25 bar Absolute
Proof Pressure	2 x Full Scale (FS) (1.5 x FS for 400 bar, >= 5000 psi)
Burst Pressure	>35 x FS <= 6 bar (100 psi) >20 x FS >=60 bar (1000 psi) >5 x FS <= 400 bar (6000 psi)
Fatigue Life	Designed for more than 100 million FS cycles
Performance	
Long Term Drift	0.2% FS/year (non-cumulative)
Accuracy	0.25 % FS typical (optional 0.15% FS)
Thermal Error	1.5% FS typical (optional 1% FS)
Compensated Temperatures	-20° to 80° C (-5° to 180° F)
Operating Temperatures	-40° to 125° C (-40° to 260° F) for elec. codes A, B, C -20° to 80° C (-5° to 180° F) for elec. code G -20° to 50° C (-5° to 125° F) for clec. codes F,M, 3
Zero Tolerance	1% of span
Span Tolerance	1% of span
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See ordering chart
Enclosure	316 ss, 17-4 PH ss IP65 for elec. codes A, B, C, G, 3 IP67 for elec. code "F" IP68 for elec. codes M,
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.032% FS/g for 1 bar (15 psi) range decreasing logarithmically to 0.0007% FS/g for 400 bar (6000 psi) range
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	Ex II 1G ; EEx ia IIC T4 (-20 ≤ Ta ≤ +75°C)
Weight	approx. 100 grams (additional cable; 75 g/m)

CE

Ex II IG

Individual Specifications

Voltage Output units	
Output	See ordering chart
Supply Voltage (Vs)	1.5 Vdc above FS output to 25.5 Vdc
Supply Voltage Sensitivity	0.01% FS/Volt
Min.Load Resistance	(FS output / 2) Kohms
Current Consumption	approx 6 mA at 7.5V output
Current Output Units	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	24 Vdc, (7-25.5 Vdc) above 100°C supply limited to 24Vdc
Supply Voltage Sensitivity	0.0 1% FS/Volt
Max. Loop Resistance	(Vs-7) x 50 ohms

Indicators and Accessories Pages 62-67

Wire Code			Current Units (4-20mA)		
			(+)	(-)	EARTH
A, B, G	Industrial DIN	PIN	1	2	4
C	"10-6 Bayonet"	PIN	A	B	E
D	cable		R	BK	DRAIN
F	IP 67cable		R	BK	DRAIN
1	"8-4-Bayonet"	PIN	A	B	D
3	"conduit & cable"		R	BK	DRAIN
M	Immersible IP68				
	to 200m		R	BL	DRAIN

Wire Code			Voltage Units			
			IN+	COM	OUT+	EARTH
A, B, G	Industrial DIN	PIN	1	2	3	4
C	10-6 Bayonet	PIN	A	C	B	E
D	cable		R	BK	W	DRAIN
F	IP 67cable		R	BK	W	DRAIN
1	"8-4-Bayonet"	PIN	A	C	B	D
3	"conduit & cable"		R	BK	W	DRAIN
M	Immersible IP68					
	to 200m		R	W	Y	DRAIN

Cable Legend:
R = Red
BL = Blue
BK = Black
W = White

How to Order

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

22IC B G A60 01 A B U A

Series
22IC **26IC**

Output
B - 4-20mA
C - 1-6V
D - 1-11V
H - 1-5V
J - 0.5-5.5V
R - 0-5V
S - 0-10V

Pressure Datum
G - Gauge
A - Absolute

Pressure Range - bar (Additional intermediate ranges available - please consult factory)
A10 - 0-1
A16 - 0-1.6
A25 - 0-2.5
A40 - 0-4
A60 - 0-6
B10 - 0-10
B16 - 0-16
B25 - 0-25
B40 - 0-40
B60 - 0-60
C10 - 0-100
C16 - 0-160
C25 - 0-250
C40 - 0-400
Vac = -1 bar
1A0 - Vac-0
1A6 - Vac-0.6
2A5 - Vac-1.5
4A0 - Vac-3
6A0 - Vac-5
1B0 - Vac-9
1B6 - Vac-15
2B5 - Vac-24
4B0 - Vac-39

Pressure Range – psi (see note 1)
F15 - 0-15
F30 - 0-30
F60 - 0-60
G10 - 0-100
G15 - 0-150
G20 - 0-200
G30 - 0-300
G50 - 0-500
G60 - 0-600
H10 - 0-1,000
H15 - 0-1,500
H20 - 0-2,000
H30 - 0-3,000
H40 - 0-4,000
H50 - 0-5,000
H60 - 0-6,000
Vac = -15 psi
1F5 - Vac-0
3F0 - Vac-15
6F0 - Vac-45
1G0 - Vac-85
1G5 - Vac-135
2G0 - Vac-185
3G0 - Vac-285

Pressure Port
01 - G1/4 External
02 - 1/4-18 NPT External
03 - G1/2 Manometer
04 - 7/16-20UNF to SAE J514
05 - G1/4 Ext. Soft Seal
08 - 1/8-27 NPT External
09 - G1/8 Internal
00 - G1/4 Internal
0A - R1/4 External
19 - Nose Cone (2600 Only)
Others - Consult Factory

Electrical Connection
22IC Series
A - Industrial DIN Mating Connector Supplied
B - Industrial DIN Mating Connector Not Supplied
F - Cable Gland Metal IP67

26IC Series
C - Fixed Plug Size 10-6 Mating Plug Not Supplied
G - Fixed Plug To DIN 43650 Mating Plug Supplied
M - Immersible Max. depth 200 metres
1 - Fixed Plug Size 8-4 Mating Plug Not Supplied
3 - Conduit Connector 1/2NPT Ext. 1M Cable

Performance Code
Accuracy/Thermal
A - .25%/1.5%
B - .15%/1.0%

Cable Length
(Max length on 22IC **G** - 100 Metres)
U - No Cable Fitted
D - 1 Metre
E - 3 Metres
F - 5 Metres
G - 10 Metres
H - 15 Metres
J - 20 Metres
K - 25 Metres
L - 30 Metres
M - 40 Metres
N - 50 Metres
P - 75 Metres
Q - 100 Metres
R - 125 Metres
S - 150 Metres

Apparatus Protection
B - Intrinsically safe, zener barrier, Gauge only
G - Intrinsically safe, galvanic barrier Gauge or Absolute

Ex II IG

EEx ia IIC T4
(-20 < Ta < +75°C)

Indicators and Accessories Pages 62-67

Dimensions (in mm)

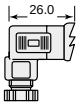
22IC Series

Industrial DIN Connector

Code "B"

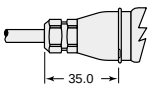
Industrial DIN Connector (mate supplied)

Code "A"



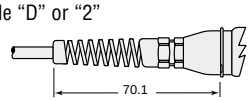
IP67 Cable

Code "F"



IP65 or NEMA4 Cable

Code "D" or "2"



26IC Series

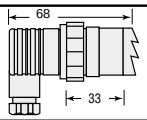
10-6 or 8-4 Mil-C Connector

10-6 Code "C"

8-4 Code "1"

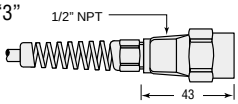
Large DIN 43650 Plug (mate supplied)

Code "G"



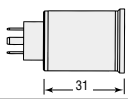
Conduit Connector with Cable

Code "3"



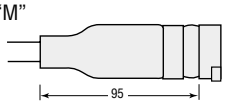
Micro DIN Connector

Code "T"

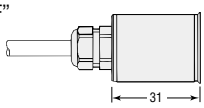


Immersible Cable

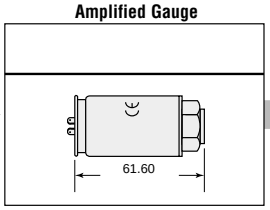
Code "M"



Code "F"

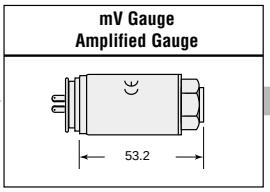


mV Gauge
Amplified Gauge



Maximum diameter 27.3 mm

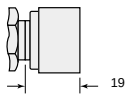
mV Gauge
Amplified Gauge



Maximum diameter 27.3 mm

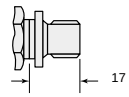
G 1/4 Internal

Code "00"



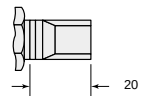
G 1/4 External

Code "01"



1/4 - 1/8 NPT

Code "02"

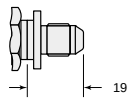


G 1/2 Manometer

Code "03"

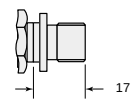
7/16-20 UNF-2A

Code "04"



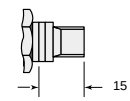
G 1/4 Soft Seal

Code "05"



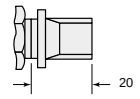
1/8-27 NPT

Code "08"



R 1/4

Code "0A"



G 1/8 Internal

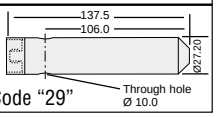
Code "09"

Nose Cone - Black Acetal

Code "19"

Nose Cone Sink Weight

Code "29"



Others - Consult factory

Indicators and Accessories Pages 62-67

1200 Series / 1600 Series- *psibar* an OEM Transducer Featuring Exceptional Proof Pressure and Stability Specifications

- Gauge, vacuum, and compound pressure models
- General purpose and wash down enclosures
- High proof pressure achieved by thicker diaphragm construction
- Voltage and current output models

The *psibar* features stability and toughness via its CVD and ASIC design coupled with a thicker diaphragm. The thicker diaphragm enables *psibar* to survive most pressure spikes caused by pump ripple, solenoid valves, etc. The 1600 series extends the packaging options by providing an all welded stainless steel back end for demanding industrial applications. The *psibar*'s modular design enables special ordering of fittings, electrical cables, etc. for OEM applications. The ASIC and CVD technology enables Gems to offer almost any output over any pressure range.

Specifications

Input	
Pressure Range	Vacuum to 400 bar (6000 psi) Gauge datum only
Proof Pressure	4 x Full Scale (FS) (<1% FS Zero Shift)
Burst Pressure	>35 x FS <= 4 bar (60 psi);
	>20 x FS <=40 bar (600 psi);
	>5 x FS <= 400 bar (6000 psi)
Fatigue Life	Designed for more than 100 million FS cycles
Performance	
Supply Voltage Sensitivity	0.01% FS/Volt
Long Term Drift	0.2% FS/year (non-cumulative)
Accuracy	0.5 % FS typical
Thermal Error	2.0% FS typical
Compensated Temperatures	-20° to 80° C (-5° to 180° F)
Operating Temperatures	-40° to 125° C (-40° to 260° F) for elec. codes A, B, C, 1
	-20° to 80° C (-5° to 180° F) for elec. codes 2, D, G, 3
	-20° to 50° C (-5° to 125° F) for elec. code F
Zero Tolerance	1% of span
Span Tolerance	1% of span
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See ordering chart
Enclosure	316 SS, 17-4 PH ss
	IP65 for elec. codes A,B,C,D,G,1,2,3
	IP67 for elec. codes F
	IP30 for elec. code "3" with flying leads
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.032% FS/g for 1 bar (15 psi) range decreasing logorithmically to 0.0007% FS/g for 400 bar (6000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE
Weight	approx. 100 grams (additional; cable 75 g/m)

Individual Specifications

Voltage Output units	
Output	See ordering chart
Supply Voltage (Vs)	1.5 Vdc above FS output to 35 Vdc
Min. Load Resistance	(FS output / 2) Kohms
Current Output units	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	24 Vdc, (7-35 Vdc) Above 100°C supply limited to 24 Vdc
Max. Loop Resistance	(Vs-7) x 50 ohms

Wire Code			**Current Units (4-20mA)**		
			(+)	(-)	EARTH
A, B, G	Industrial DIN	PIN	1	2	4
C	"10-6 Bayonet"	PIN	A	B	E
D	cable		R	BK	DRAIN
F	IP 67cable		R	BK	DRAIN
1	"8-4-Bayonet"	PIN	A	B	D
2	"cable"		R	BK	DRAIN
3	"conduit & cable"		R	BK	DRAIN

Wire Code			**Voltage Units**			
			IN+	COM	OUT+	EARTH
A, B, G	Industrial DIN	PIN	1	2	3	4
C	10-6 Bayonet	PIN	A	C	B	E
D	cable		R	BK	W	DRAIN
F	IP 67cable		R	BK	W	DRAIN
1	"8-4-Bayonet"	PIN	A	C	B	D
2	"cable"		R	BK	W	DRAIN
3	"conduit & cable"		R	BK	W	DRAIN

Cable Legend:

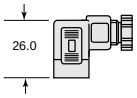
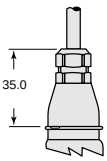
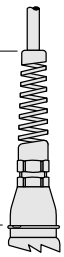
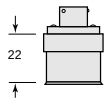
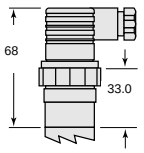
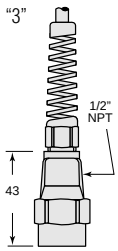
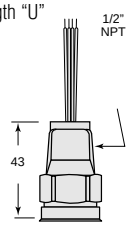
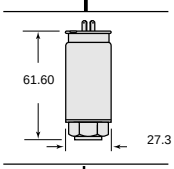
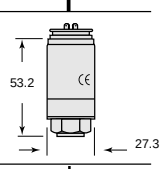
R = Red
BL = Blue
BK = Black
W = White

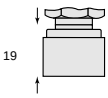
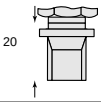
Indicators and Accessories Pages 62-67

Dimensions (in mm)

psibar 1200 Series

psibar 1600 Series

Industrial DIN (mate supplied)	IP67 Cable (Weatherproof)	IP65 or NEMA 4 Cable	10-6 or 8-4 Mil-C Connector	Large DIN 43650 Plug (mate supplied)	Conduit Connector with Cable	Conduit Connector with Flying Leads
Code "A"	Code "F"	Code "D" or "2"	10-6 Code "C" 8-4 Code "1"	Code "G"	Code "3"	Code "3" with length "U"
						
						

G1/4 Internal	G1/4 External	1/4 - 18 NPT	G1/2 Manometer	7/16 - 20 UNF-2A (SAE J514)	G1/4 Soft Seal	1/8 NPT	R 1/4	G 1/8
								
Code "00"	Code "01"	Code "02"	Code "03"	Code "04"	Code "05"	Code "08"	Code "0A"	Code "09"

How to Order

Use the **bold** characters from the chart below to construct a product code. For other pressure connections consult Sales Office

1600 B G A60 01 D 3 D A

Series
- **1200**
- **1600**

Output
- **B** - 4-20mA
- **C** - 1-6V
- **D** - 1-11V
- **H** - 1-5V
- **J** - 0.5-5.5V
- **R** - 0-5V
- **S** - 0-10V

Datum
- **G** - Gauge

Pressure Range - psi
- **F15** - 0-15
- **F30** - 0-30
- **F60** - 0-60
- **G10** - 0-100
- **G15** - 0-150
- **G20** - 0-200
- **G30** - 0-300
- **G50** - 0-500
- **G60** - 0-600
- **H10** - 0-1.000
- **H15** - 0-1.500
- **H20** - 0-2.000
- **H30** - 0-3.000
- **H40** - 0-4.000
- **H50** - 0-5.000
- **H60** - 0-6.000
- **Vac** = -15 psi
- **1F5** - Vac-0
- **3F0** - Vac-15
- **6F0** - Vac-45
- **1G0** - Vac-135
- **1G5** - Vac-135
- **2G0** - Vac-185
- **3G0** - Vac-285

Pressure Range - bar
- **A10** - 0-1
- **A16** - 0-1.6
- **A25** - 0-2.5
- **A40** - 0-4
- **A60** - 0-6
- **B10** - 0-10
- **B16** - 0-16
- **B25** - 0-25
- **B40** - 0-40
- **B60** - 0-60
- **C10** - 0-100
- **C16** - 0-160
- **C25** - 0-250
- **C40** - 0-400
- **Vac** = -1 bar
- **1A0** - Vac-0
- **1A6** - Vac-0.6
- **2A5** - Vac-1.5
- **4A0** - Vac-3
- **6A0** - Vac-5
- **1B0** - Vac-9
- **1B6** - Vac-15
- **2B5** - Vac-24
- **4B0** - Vac-39

Pressure Port
- **01** - G1/4 External
- **02** - 1/4 NPT External
- **03** - G1/2 Manometer
- **04** - 7/16 UNF External
- **05** - G1/4 Soft Seal
- **08** - 1/8 NPT External
- **09** - G1/8 Internal
- **Others** - consult factory

Electrical Connection
- **1200 Series**
  - **A** - Industrial DIN with mate
  - **B** - Industrial DIN without mate
  - **D** - IP65 Cable
  - **F** - IP67 Weatherproof Cable Gland
  - **2** - NEMA 4 Cable (USA colour code)
- **1600 Series**
  - **C** - 10-6 Mil C Connector
  - **1** - 8-4 Mil C Connector
  - **G** - Large DIN 43650 Plug
  - **3** - Conduit Connector with 1 Meter Leads (for cable specify length code)

CE Approved c UL us Listed

Cable Length
- **U** - None
- **D** - 1m (3ft)
- **E** - 3m (9ft)
- **F** - 5m (16ft)
- **G** - 10m (32ft)

Performance Code

Indicators and Accessories Pages 62-67

2800 Series High Performance Industrial Pressure Transmitters

- 1% Error band over -30° to 100°C
- Customised options
- Ranges from 0.5 to 400 bar
- Choice of outputs

The 2800 series features stability and enhanced accuracy in a variety of enclosure options for demanding submersible and industrial applications. The 2800 features proven CVD sensing technology, an ASIC and modular packaging to provide a sensor with high performance over a wide temperature range. Modular construction allows customised options to be easily accommodated

Specifications

Input	
Pressure Range	Vacuum to 400 bar G (6000 psi) 0 - 25 bar Absolute
Proof Pressure	2 x Full Scale (FS) (1.5 x Fs for 400 bar, >= 5000 psi)
Burst Pressure	>35 x FS <= 6 bar (100 psi)
	>20 x FS >=60 bar (1000 psi)
	>5 x FS <= 400 bar (6000 psi)
Fatigue Life	Designed for more than 100 million FS cycles
Performance	
Long Term Drift	0.2% FS/year (non-cumulative)
Accuracy	0.1% FS max.
Thermal Error	1% FS max.*
Compensated Temperatures	-30° to +100°C (-20° to +212° F)
Operating Temperatures	-40° to 125° C (-40° to 260° F) for elec. codes C and D
	-20° to 50° C (-5° to 125° F) for elec. code M
Zero Tolerance	1% of span
Span Tolerance	1% of span
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See ordering chart
Enclosure	316 ss, 17-4 PH ss
	IP40 for elec. code C Gauge Datum
	IP65 for elec. code C Absolute Datum
	IP66 for elec. code D
	IP68 for elec. code M
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.032% FS/g for 1 bar (15 psi) range decreasing logorithmically to 0.0007% FS/g for 400 bar (6000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE
Weight	approx. 100 grams (additional cable; 75 g/m)

* Standard ranges only

Individual Specifications

Voltage Output units	
Output	See ordering chart
Supply Voltage (Vs)	1.5 Vdc above FS output to 35 Vdc @ 6 mA
Supply Voltage Sensitivity	0.01% FS/Volt
Min. Load Resistance	(FS output / 2) Kohms
Current Consumption	approx 6 mA at 7.5V output
Current Output units	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	24 Vdc, (7-35 Vdc) Above 100°C supply limited to 24Vdc
Supply Voltage Sensitivity	0.01% FS/Volt
Max. Loop Resistance	(Vs-7) x 50 ohms

Indicators and Accessories Pages 62-67

Connection Code			Current units (4-20mA)			Voltage units			
			(+)	(-)	EARTH	IN+	COM	OUT+	EARTH
C	"10-6 Bayonet"	PIN	A	B	E	A	C	B	E
D	"cable"		R	BL	DRAIN	R	W	Y	DRAIN
M	"Immersible		R	BL	DRAIN	R	W	Y	DRAIN

Cable Legend: R = Red
BL = Blue
W = White
Y = Yellow

How to Order

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

2800 B G A60 01 A 3 005 A

Series
2800

Output
B - 4-20mA
C - 1-6V
D - 1-11V
H - 1-5V
J - 0.5-5.5V
R - 0-5V
S - 0-10V

Pressure Datum
A* - Absolute
G - Gauge
*Max absolute range is 25 bar.

Pressure Range - bar (additional intermediate pressure ranges available - consult factory)
A10 - 0-1
A16 - 0-1.6
A25 - 0-2.5
A40 - 0-4
A60 - 0-6
B10 - 0-10
B16 - 0-16
B25 - 0-25
B40 - 0-40
B60 - 0-60
C10 - 0-100
C16 - 0-160
C25 - 0-250
C40 - 0-400
Vac = -1 bar
1A0 - Vac-0
1A6 - Vac-0.6
2A5 - Vac-1.5
4A0 - Vac-3
6A0 - Vac-5
1B0 - Vac-9
1B6 - Vac-15
2B5 - Vac-24
4B0 - Vac-39

Pressure Port
01 - G1/4 External
02 - 1/4-18 NPT External
03 - G1/2 Manometer
04 - 7/16-20UNF to SAE J514
05 - G1/4 Ext. Soft Seal
08 - 1/8-27 NPT External
09 - G1/8 Internal
00 - G1/4 Internal
0A - R1/4 External
19 - Nose Cone
others - consult factory

Electrical Connection
C - Fixed Plug Size 10-6 Mating Plug Not Supplied
D - Weatherproof cable IP66
M - Immersible Max depth 200 metres

Performance Code
Accuracy/Thermal
A - 0.1%/1%

Cable Length
001 = 1 metre cable
099 = 99 metres cable
Applies to code D & M electrical connection only
Code C = 000

Apparatus Protection
RFI Protected CE Mark

Indicators and Accessories Pages 62-67

Dimensions (in mm)

2800 Series

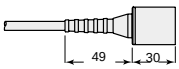
10-6 or 8-4 Mil-C Connector

10-6 Code "C"

8-4 Code "1"

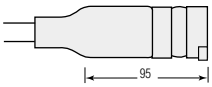
IP66 Cable

Code "D"

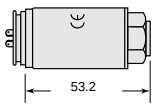


Immersible Cable

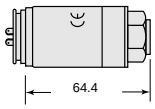
Code "M"



Amplified Gauge



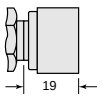
Amplified Absolute



Maximum diameter 27.3 mm

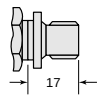
G 1/4 Internal

Code "00"



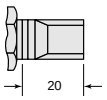
G 1/4 External

Code "01"



1/4 - 1/8 NPT

Code "02"

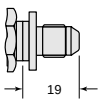


G 1/2 Manometer

Code "03"

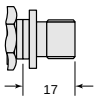
7/16-20 UNF-2A

Code "04"



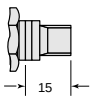
G 1/4 Soft Seal

Code "05"



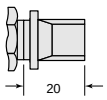
1/8-27 NPT

Code "08"



R 1/4

Code "0A"



G 1/8 Internal

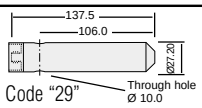
Code "09"

Code "M"

Nose Cone - Black Acetal

Code "19"

Nose Cone Sink Weight



Code "29"

Others - Consult factory

Indicators and Accessories Pages 62-67

28IC Series High Performance Intrinsically Safe Industrial Pressure Transmitters

- 1% Error band over -30° to 100°C
- Ex 11 1G: EEx ia IIC T4 (-20°C ≤ 75°)
- Ranges from 0.5 to 400 bar
- All stainless steel wetted parts

The Intrinsically Safe 28IC series offers high performance for critical measurements. Available in a choice of standard or custom designed packages, the 28IC utilises Gems CVD sensing technology with ASIC to provide optimum performance while the all stainless steel wetted parts ensure media compatibility.

Specifications

Input	
Pressure Range	Vacuum to 400 bar G (6000 psi) 0 - 25 bar Absolute
Proof Pressure	2 x Full Scale (FS) (1.5 x Fs for 400 bar, >= 5000 psi)
Burst Pressure	>35 x FS <= 6 bar (100 psi)
	>20 x FS >=60 bar (1000 psi)
	>5 x FS <= 400 bar (6000 psi)
Fatigue Life	Designed for more than 100 million FS cycles
Performance	
Long Term Drift	0.2% FS/year (non-cumulative)
Accuracy	0.1% FS max.
Thermal Error	1% FS max.*
Compensated Temperatures	-30° to +100°C (-20° to +212° F)
Operating Temperatures	-40° to 125° C (-40° to 260° F) for elec. codes C and D
	-20° to 50° C (-5° to 125° F) for elec. code M
Zero Tolerance	1% of span
Span Tolerance	1% of span
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See ordering chart
Enclosure	316 ss, 17-4 PH ss
	IP40 for elec. code C Gauge Datum
	IP65 for elec. code C Absolute Datum
	IP66 for elec. code D
	IP68 for elec. code M
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.032% FS/g for 1 bar (15 psi) range decreasing logorithmically to 0.0007% FS/g for 400 bar (6000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	Ex 11G 1G: EEx ia IIC T4
Weight	approx. 100 grams (additional cable; 75 g/m)

* Standard ranges only

Connection Code			Current units (4-20mA)		
			(+)	(-)	EARTH
C	"10-6 Bayonet"	PIN	A	B	E
D	"cable"		R	BL	DRAIN
M	"Immersible		R	BL	DRAIN

Connection Code			Voltage units			
			IN+	COM	OUT+	EARTH
C	"10-6 Bayonet"	PIN	A	C	B	E
D	"cable"		R	W	Y	DRAIN
M	"Immersible		R	W	Y	DRAIN

Cable Legend: R = Red, BL = Blue, W = White, Y = Yellow

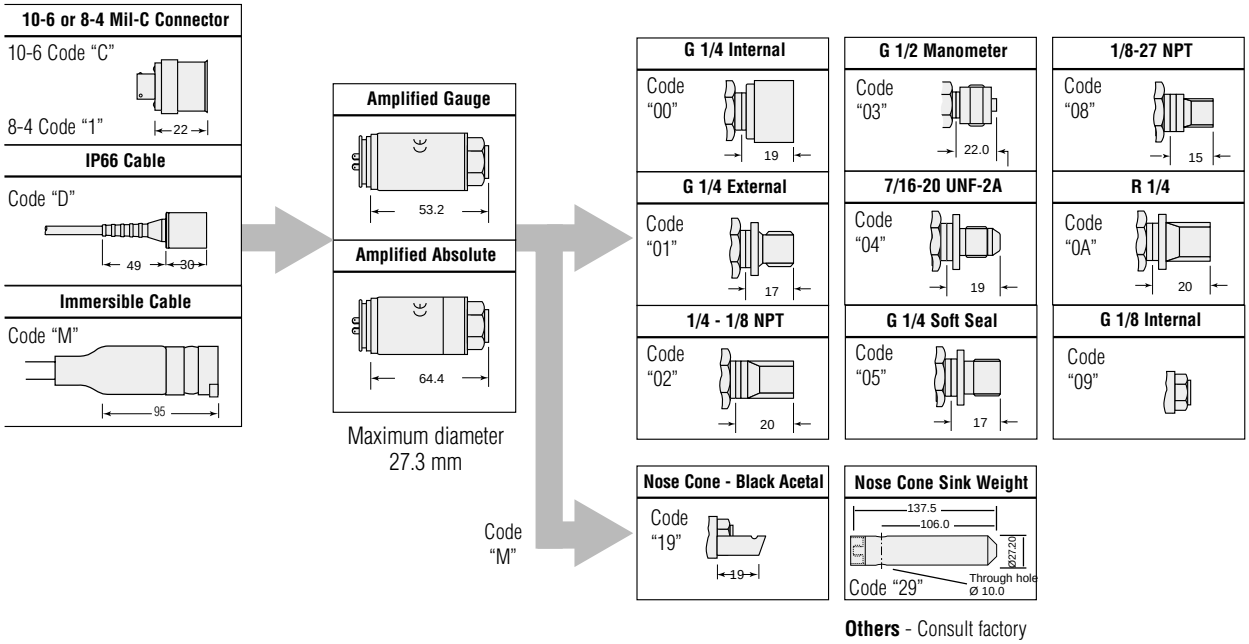
Individual Specifications

Voltage Output units	
Output	See ordering chart
Supply Voltage (Vs)	1.5 Vdc above FS output to 35 Vdc @ 6 mA
Supply Voltage Sensitivity	0.01% FS/Volt
Min. Load Resistance	(FS output / 2) Kohms
Current Consumption	approx 6 mA at 7.5V output
Current Output units	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	24 Vdc, (7-25.5 V) Above 100°C supply limited to 24Vdc
Supply Voltage Sensitivity	0.01% FS/Volt
Max. Loop Resistance	(Vs-7) x 50 ohms

Indicators and Accessories Pages 62-67

Dimensions (in mm)

2800 Series



Others - Consult factory

How to Order

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

28IC **B** **G** **A60** **01** **A** **B** **005** **A**

Series
28IC

Output
B - 4-20mA
C - 1-6V
D - 1-11V
H - 1-5V
J - 0.5-5.5V
R - 0-5V
S - 0-10V

Pressure Datum
A* - Absolute
G - Gauge
*Max absolute range is 25 bar.

Pressure Range - bar (see note 1)
A10 - 0-1
A16 - 0-1.6
A25 - 0-2.5
A40 - 0-4
A60 - 0-6
B10 - 0-10
B16 - 0-16
B25 - 0-25
B40 - 0-40
B60 - 0-60
C10 - 0-100
C16 - 0-160
C25 - 0-250
C40 - 0-400
Vac = -1 bar
1A0 - Vac-0
1A6 - Vac-0.6
2A5 - Vac-1.5
4A0 - Vac-3
6A0 - Vac-5
1B0 - Vac-9
1B6 - Vac-15
2B5 - Vac-24
4B0 - Vac-39

Pressure Port
01 - G1/4 External
02 - 1/4-18 NPT External
03 - G1/2 Manometer
04 - 7/16-20UNF to SAE J514
05 - G1/4 Ext. Soft Seal
08 - 1/8-27 NPT External
09 - G1/8 Internal
00 - G1/4 Internal
0A - R1/4 External
19 - Nose Cone

Electrical Connection
C - Fixed Plug Size 10-6 Mating Plug Not Supplied
D - Weatherproof cable IP66 (see note 1)
M - Immersible Max. depth 200 metres

Performance Code

Accuracy/Thermal
A - .0.10%/1%

Cable Length
001 - 1 metre cable
099 - 99 metres cable
Applies to code 'D & M' electrical connection only
Code C = 000

Apparatus Protection
B - Intrinsically Safe, zener barrier, Gauge only
G - Intrinsically safe, galvanic barrier, Gauge or Absolute

Ex 11 IG

EEx ia IIC T4
(-20<Ta<+75°C)

Notes:
1 Additional Pressure Ranges are available. Please consult factory.

Indicators and Accessories Pages 62-67

6700 Series-Stable Industrial Transmitters with Turndown Capabilities

- Gauge and absolute pressure models
- Submersible, general purpose and wash down enclosures
- High stability achieved by sputtered sensing element

The 6700 series features customer accessible 5:1 turndown from nominal range via a switch and potentiometer. Down ranging whether factory or user adjusted is ideal for applications requiring high overpressure. The 6700 are housed in a rugged enclosure for harsh conditions and features superb stability by incorporating Gems' CVD sensing element.

Lloyds Register

Specifications

Input	
Pressure Range	0.5 to 400 bar; (7.5 to 6,000 psi) Gauge and Absolute
Proof Pressure	2 x Full Scale (FS) (1.5 x FS for 400 bar, >= 5000 psi)
Burst Pressure	>35 x FS <= 6 bar (100 psi)
	>20 x FS >=60 bar (1000 psi)
	>5 x FS <= 400 bar (6000 psi)
Fatigue Life	Designed for more than 100 million FS cycles
Performance	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	9.5 to 40 Vdc
Supply Voltage Sensitivity	0.005% of max span/Volt
Long Term Drift	0.15% of max span/year (non-cumulative)
Accuracy	0.15 % FS typical
Thermal Error Typical	-10° to 50° C (15° to 120° F) 0.5% of max span
	-20° to 80° C (-4° to 176° F) 1% of max span
Operating Temperatures	-20° to 85° C (-4° to 185° F) elec. conn. code C G & L
	-20° to 50° C (-4° to 122° F) elec. conn. code M, 3
	-30° to 100° C (-22° to 212° F) process/media
Zero Tolerance	0.1 % span, typical
Span Tolerance	0.1% span, typical
Zero Adjustment	+/- 10% (100% at factory) by potentiometer
Span Adjustment	17% to 100 % of span by potentiometer/switches
Max. Loop Resistance	(Vs-9.5) x 50 ohms
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See ordering chart
Enclosure	321 ss, 17-4 PH ss
	IP40 for gauge datum elec code C, L
	IP65 for absolute datum elec code C, L
	IP65 for elec. code G, 3
	IP68 for elec. code M
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.036% FS/g for 0.75 bar (10 psi) range decreasing logarthmicaly to 0.0007% FS/g for 400 bar (6000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE, Lloyds Register
	EXII 1G; E Exia II CT4 (-40°C < T amb <75°C) Cert BASEEFA 02ATEX00040X
Weight	Approx. 250 grams (additional; cable 75 g/m)

Electrical connection		**Wiring**		
		(+)	**(-)**	**EARTH**
G	"DIN"	1	2	4
C	"10-6 Bayonet"	A	B	E
M	IP68 cable	R	BL	DRAIN
L	M12	1	2	4
3	Leads	R	BL	G

Cable Legend:

R = Red

BL = Blue

G = Green

Indicators and Accessories Pages 62-67

How to Order

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

6700 **B** **G** **B10** **00** **G** **3** **010** **B**

6700 series for bar ranges
Output Response
B - 4-20 mA
Pressure Datam
G - gauge and compound; **A** absolute
Insert pressure range code from table below
Pressure Port see chart
Electrical Connection
C - Fixed plug size 10-6, **L -** M12 x 1 (5 pin) **3 -** ½ - 14 NPT conduit
M - submersible cable, to 200 meters; **G -** Fixed plug to DIN 43650, mate supplied
Approvals/Protection
3 - CE;
G - ATEX EXII 1 EExa IIC T4, (-40< Ta<+75°)galvanic isolation gauge and absolute
Cable Length in meters (requires electrical connection code M or 3)
000 - no cable **001 -** 1 metre cable **999 -** 999 metres
Static/Thermal performance
B - 0.15%/0.5%

Note: For 500mb range code A 0.25%/3% only

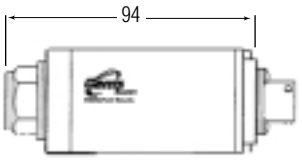
6700 Model Bar Ranges	Range Code	Gauge (G) Absolute (A)
0 to 500mb	**N50**	G, A
0 to 1	**A10**	G, A
0 to 1.6	**A16**	G, A
0 to 2.5	**A25**	G, A
0 to 4	**A40**	G, A
0 to 6	**A60**	G, A
0 to 10	**B10**	G, A
0 to 16	**B16**	G, A
0 to 25	**B25**	G, A
0 to 40	**B40**	G
0 to 60	**B60**	G
0 to 100	**C10**	G
0 to 160	**C16**	G
0 to 250	**C25**	G
0 to 400	**C40**	G

Pressure Ports for the 6700 series

Code	Description of Stainless Steel Fittings
OO	G 1/4 internal
AO	G 1/4 external
KO	7/16-20 UNF-3A external
MO	M14 x 1.5 external
PO	G 1/2 manometer
BO	1/4-18 NPT external
GO	1/2-14 NPT external
SO	7/16-20 UNJF-3A, MS 33656E4
Immersible Sensors	
19	Plastic nose cone
20	Nose cone with restrictor
30	Nose cone w/ s steel sink weight

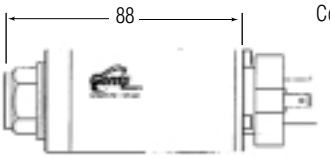
Dimensions (in mm)

Max diameter 39mm, all models



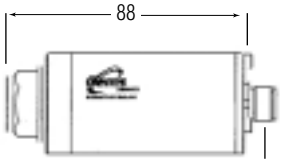
Code C

6 Pin Fixed Plug (10-6)



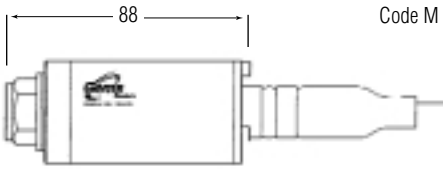
Code G

Fixed Plug to DIN 43650 Mating Connector Supplied



Code L

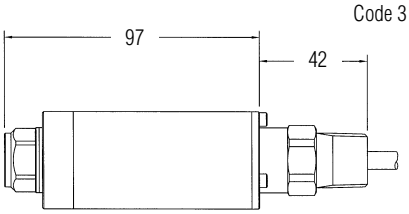
Electrical Connector M12 x 1 (5 Pin)



Code M

Immersible to 200mWG

Code 3



1/2 to 14 NPT Conduit

Indicators and Accessories Pages 62-67

1000 Series Compact High Pressure OEM Pressure Transmitter

- 16 Bar to 2200 bar pressure ranges
- Less than 25mm long
- Choice of outputs

The 1000 Series high-pressure OEM product features a sputtered thin film sensor to provide consistent high levels of performance and stability for large volume users. A wide choice of electrical outputs as well as both electrical and pressure connections means the unit is suitable for most applications without modification. The compact construction of the 1000 series makes it ideal for installation where space is at a premium.

Specifications

Input	
Pressure Range	0 to 6 bar to 0 to 2200 bar G (80 to 30,000 psi)
Proof Pressure	2 x FS (Ranges 1600 & 2200 bar 1.25x)
Burst Pressure	Ranges ≤100 bar 10x 600 & 1000 bar 4x ≥1600 bar 1.25x
Fatigue Life	Designed for more than 100,000,000 cycles
Performance	
Long Term Drift	0.1% FS/year non cumulative
Accuracy	±0.25% FS
Thermal Error	±2% FS typical
Compensated Temperature	-40° to 120°C (-40° to 250°F)
Operable	-40°to 125°C (-40° to 260°F)
Zero Tolerance	1% of span (mV unit ±10mV)
Span Tolerance	1% of span (mV units contact Sales Office)
Mechanical Construction	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See ordering chart
Enclosure	IP65 for electrical code A IP67 for electrical codes E, 6 IP69K for electrical code 7
Vibration	20G, 10-2000Hg sinusuidal
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE
Weight	35 gms

Individual Specifications

Voltage Output Units	
Output	See ordering chart
Supply Voltage	2 Volts above Full Scale, to max 36 Volts
Current Output Units	
Output	4 to 20mA
Supply Voltage	10 to 36 Vdc (24 Vdc max for 110° and above)
Max. Loop Resistance	(Vs-10) x 50 ohms
Ratiometric Output Units	
Output	0.5 to 4.5 Vdc
Supply Voltage	5 Vdc
Millivolt	
Output	10-25mV range dependant
Supply Voltage	10 Vdc

Electrical Connectors

AMP Superseal 1.5

Mini 4 PIN CON

DIN 72585 Bayonet

M12 Ranges

Deutsch DTD4-4P

Connector Code		MV Units				Current		Voltage			
		+ In	+ Out	-VE Out	-IN	+	-	+Ve In	Common	Pressure + VE Out	Temp + Ve Out
A Industrial DIN	**PIN**	1	3	2	4	2	4	1	3	2	4
E M12 x 1.5		N/A	N/A	N/A	N/A	1	3	1	3	2	4
6 Amp Superseal		N/A	N/A	N/A	N/A	3	2	3	2	1	N/A
7 DIN 72585		N/A	N/A	N/A	N/A	1	2	1	2	3	4
8 Deutsch		N/A	N/A	N/A	N/A	1	2	2	1	4	3
Cable		Red	Blue	Green	Yellow	Red	Blue	Red	Blue	Green	Yellow

How to Order

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

1000 B G C60 02 A 3 U A

Series
- **1000 -** Pressure output
- **1001 -** Pressure and temperature output (see **Note 1**)

Output:
- **A -** MV 10-25mV (See **Note 2**)
- **B -** 4-20mA
- **C -** 1-6 V
- **H -** 1-5 V
- **N -** 0.5 to 4.5V
- **R -** 0-5 V
- **S -** 0-10 V
- **T -** 0.5 to 4.5 Ratiometric

Pressure Datum
- **G -** gauge

Insert pressure range code from table below

Pressure range - psi (optional) Pressure range - bar (for additional ranges contact sales)

A60 – 0-6	**B10** – 0-10	**C10** – 0-100	**D10** – 1000)
	B16 – 0-16	**C16** – 0-160	**D16** – 1600) See **note 3**
	B25 – 0-25	**C25** – 0-250	**D22** – 2200)
	B40 – 0-40	**C40** – 0-400	
	B60 – 0-60	**C60** – 0-600	

Pressure Port (for additional ports contact sales)
- **01 -** G1/4 External
- **02 -** 1/4 NPT External
- **04 -** 7/16-20 UNF
- **05 -** G1/4 External s/s
- **08 -** 1/8 NPT External
- **2P -** G1/4 A External Manometer
- **2T -** M12 x 1.5 (6g) ≥ 1000 bar
- **OL -** M12 x 1.5 ≤ 600 bar

Performance Code -
- **A -** 0.25%/2%
- **U -** No cable

Approvals/Protection
- **3 -** CE

Electrical Connection
- **A -** Industrial DIN
- **E -** M12 x1 4PIN
- **6 -** AMP Superseal 1.5 Series
- **7 -** DIN 72585 Bayonet A1 - 4.1
- **8 -** Deutsch DTD4-4P

Options shown in green are preferred options and available on short lead time

Note 1 Pressure and temperature output available with voltage output and electrical connectors A, E, 7 and 8 only

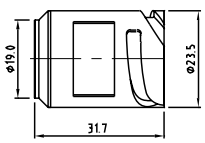
Note 2 mV unit available with electrical connector "E" only

Note 3 Ranges 1000 bar and above available with 2T pressure port only.

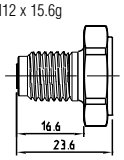
CONNECTOR VARIATIONS

PROCESS CONNECTION

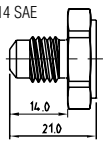
Code 7 — DN 72585 Bayonet IP Rating IP68



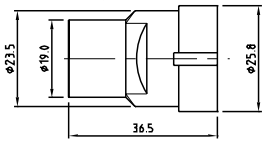
Code 2T — M12 x 15.6g



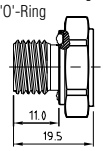
Code 04 — 7/16" UNF J514 SAE



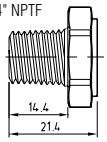
Code 6 — AMP Superseal 15 IP Rating IP67



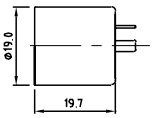
Code 05 — G 1/4 With Integral 'O'-Ring



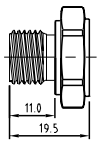
Code 02 — 1/4" NPTF



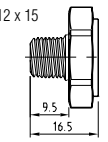
Code A — GOS 207 IP Rating IP65



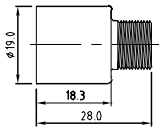
Code 01 — G 1/4 A Stud Union



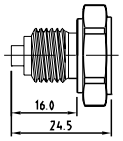
Code 0L — M12 x 15



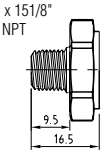
Code E — M12 IP Rating IP67



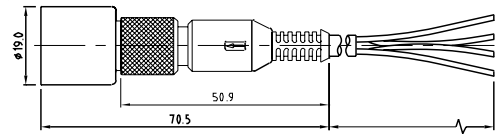
Code 2P



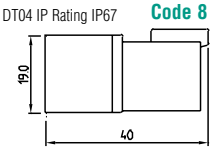
Code 08 — M12 x 151/8" - 18 NPT



Code 8 — M12 Flying Lead IP Rating IP67



Code 8 — Deutsch DT04 IP Rating IP67



NOTE: Dimensions in mm

Indicators and Accessories Pages 62-67

3000 Series - Hymap Pressure Transmitter

- Zero potentiometer to allow correction for small process effects
- Performance reliability in application due to high shock and vibration resistance
- High performance sputtered thin film
- Outstanding performance over temperature extremes
- RFI/EMC protection 30 V/m

Hymap has been designed to provide repeatable performance over millions of cycles under harsh operating and enviromental conditions.

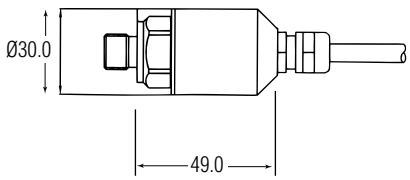
The sputtered Thin Film Sensor ensures excellent performance over wide operating temperatures and under extreme conditions of shock and vibration. Gems ASIC gives a wide choice of outputs, and optimises temperature performance, an on-board zero potentiometer allows correction of small system offsets in order to provide optimum accuracy. The stainless steel housing eliminates possible leak paths and affords a robust construction, with an integral viton seal to ensure sealing at high pressures.

Specifications

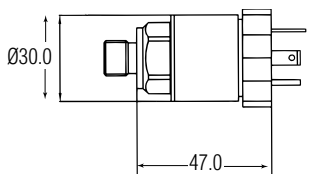
Input	
Pressure Range	0 to 60, 100, 160, 250, 400, 600, 700 bar
Proof Pressure	2 x Full Scale
Burst Pressure	≤20 x FS @ 40 bar decreasing linearly until
	≥8 x FS @ 400 bar >5 x FS @ 700 bar
Fatigue Life	Projected for more than 100 million FS cycles
Performance	
Long Term Drift	0.05% FS/year
Accuracy	0.15 % FS typical
Repeatability	0.03% FS max
Thermal Error	1.5% FS typical
Compensated Temperatures	-40° to 120° C
Operating Temperatures	-40° to 120° C, cable limited to 0°C to 100° C
Zero Tolerance	0.5% FS Adjustable, ±1.5% by potentiometer
Span Tolerance	1% of span
Mechanical Configuration	
Pressure Port	G1/4 soft seal (supplied with viton seal -30°C) or 1/4 inch NPT minimum temp.
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	IP67 Cable Large Din 43650 with mate
Enclosure	IP65 Code G IP67 Code F
Vibration	35g peak sinusoidal, 5 to 5000 Hz
Acceleration	100g steady acceleration in any direction 0.032% FS/g for 1 bar (15 psi) range decreasing logorithmically to 0.0007% FS/g for 400 bar (6000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE
Weight	Approx. 110 grams (additional cable; 75 g/m)

Dimensions (in mm)

Code F



Code G



Connection Code	Current Unit 4-20mA			Voltage Unit			
	(+)	(-)	EARTH	+IN	COM	OUT+	EARTH
G Fixed plug to DIN 43650	1	2	4	1	2	3	4
F Cable Gland	R	BL	DRAIN	R	W	Y	DRAIN

Cable Legend:

R = Red
BL = Blue
W = White
Y = Yellow

Indicators and Accessories Pages 62-67

Individual Specifications

Voltage Output units	
Output	See ordering chart
Supply Voltage (Vs)	1.5 Vdc above span to 35 Vdc @ 6 mA
Supply Voltage Sensitivity	0.01% FS/Volt
Min. Load Resistance	(FS output / 2) Kohms
Current Consumption	Approx 6 mA at 7.5V output
Current Output units	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	24 Vdc, (7-35 Vdc)
Supply Voltage Sensitivity	0.01% FS/Volt
Max. Loop Resistance	(Vs-7) 0 ohms
Ratiometric	
Output	0.5V to 4.5V
Supply Voltage (VS)	5V ±0.25V dc

3000 **B** **G** **C60** **22** **G** **3** **U** **A**

Series

Static/Thermal Performance
A - 0.15%/1.5% typical

Cable length in metres
U - No Cable
D - 1 Metre Cable
E - 3 Metre Cable
F - 5 Metre Cable
G - 10 Metre Cable

Apparatus Protection
3 - meets CE requirements

Electrical Connection
F - IP67 Cable
G - Large Din 43650 with mate

Pressure Connection
22 - 22mm A/F Hex 8 1/4-18 NPT external thread
25 - 22mm A/F Hex 8 G1/4 Ermeto external thread (soft seal)

Pressure Range Code

Code	bar Ranges	Code	psi Ranges
C10	100	**H10**	1000
C16	160	**H15**	1500
C25	250	**H20**	2000
C40	400	**H30**	3000
C60	600	**H50**	5000
C70	700	**H60**	6000
		H75	7500
		J10	10000

Pressure Datum
G - Gauge

Output
B - 4-20mA
C - 1-6V
D - 1-11V
F - 0.1-5.1V
H - 1-5V
J - 0.5-5.5V
R - 0-5V
G - 0.2-10.2V
S - 0-10V

Indicators and Accessories Pages 62-67

4000 Series - High Performance, Long Term Stability Pressure Transducers

- Gauge, sealed, absolute, and differential pressure models
- Submersible, general purpose 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 utilise the same thin film sensor as 4000.

Specifications

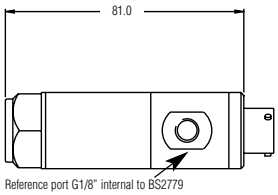
Input		
Pressure Range	0 to 1 - 0 to 690 bar	
Proof Pressure	2 x Full Scale (FS) (1.5 x FS for Inconel ports)	
Burst Pressure	>35 x Fs <= 10 bar (150 psi) ranges	
	>15 x FS <= 100 bar (1500 psi) ranges	
	>8 FS <= 690 bar (10,000 psi) ranges	
Fatigue Life	3 million FS cycles	
Common Line Pressure	Max. 60 bar absolute (850 psia) 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	Thermal error over any 50°C band between -54°C to +120°C
	Typical	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	-54° to 120 °C (-65° to 250° F)	
Operating Temperatures	-54° to 135° C (-65° to 275° F) for twist lock conn. “C”	
	-54° to 120° C (-65° to 250° F) for cable units “D”	
	-20° to 50° C (-4° to 122° F) 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 <= 1.6 bar (30 Psi)] 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 2.5bar (30 psi) range output is 25 mV +/- 1%

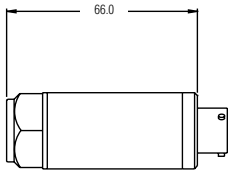
Electrical connection		**Voltage units**				
		IN+	**OUT+**	**OUT-**	**IN-**	**Case Earth**
C	“10-6 Bayonet”	A	B	C/F	D/E	
D	Weatherproof cable	Red	Yellow	Blue	White	Screen
M	IP68 cable	Red	Yellow	Blue	White	Screen

Dimensions (in mm)

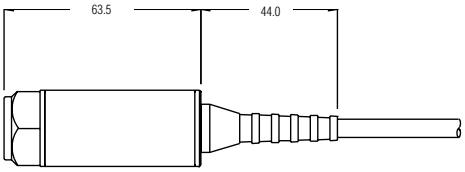
Differential — Code C



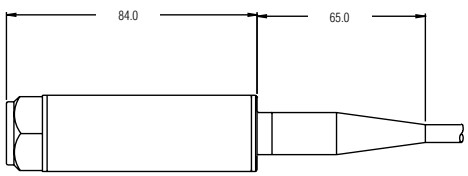
Absolute and Gauge — Code C



Absolute and Gauge — Code D



Absolute and Gauge — Code M



Maximum diameter 25.7 mm

Indicators and Accessories Pages 62-67

How to Order

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

4000 K G B10 00 D 2 D J

Series
4000 series for bar ranges, **4010** series for psi ranges
Bridge Resistance
K is 3500 ohms
Pressure Datum
G - gauge; **A -** absolute; **S -** sealed; **U -** uni-directional differential *
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
D - Weatherproof Cable IP 66
M - Immersible Cable IP68 to max depth 200 metres
Approvals/Protection
2 - CE;
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
Static/Thermal Performance
J - 0.1%/1.2%; **K -** 0.1%/0.6%; **L -** 0.08%/0.6%; **M -** 0.08%/0.3% typical over any 50°C band between -54°C to +120°C

*Differential datum units are available in electrical code "C" only and performance codes either "L" or "M".

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**

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

Pressure Ports

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**	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 Inconnel, G1/8 internal ss

Indicators and Accessories Pages 62-67

4000 Series - High Temperature, High Performance, Long Term Stability Pressure Transducers

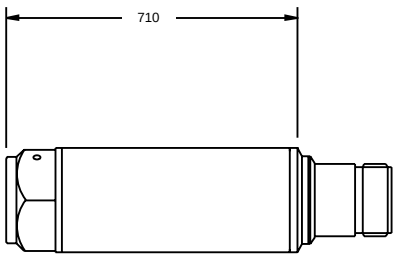
- Sealed and absolute models
- Suitable in temperatures up to 230°C (450°F)
- High stability achieved by sputtered sensing element

The high temp 4000 series provides exceptional levels of stability and other performance specifications while under excessive temperatures in harsh environments. 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, generates 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.

Specifications

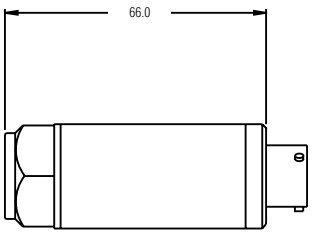
Input	
Pressure Range	0 to 1 - 0 to 690 bar
Proof Pressure	2 x Full Scale (FS)
Burst Pressure	>35 x Fs <= 10 bar ranges
	>15 x FS <= 100 bar ranges
	>8 FS <= 690 bar ranges
Fatigue Life	3 million FS cycles
Performance	
Output	25 to 38mV (certificate supplied)
Supply Voltage (Vs)	10 Vdc Regulated (15 Vdc max)
Long Term Drift	0.06% per year non-cumulative
Accuracy	0.1 % FS typical
Thermal Zero Error	.01 %FS/C (.005%/F) typical
Thermal Span Error	.01 %FS/C (.005%/F) typical
Compensated Temperatures	-54° to 200° C (-65° to 390° F)
Operating Temperatures	-54° to 230° C (-65° to 450° F) Conn. Code N
	-54° to 195° C (-65° to 385° F) Conn. Code C
Zero Tolerance	0 mV +/- 10% FS
Bridge Resistance	590-1510 ohms
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH ss
	[17-4 PH and 15-7 Mo Stainless Steel <= 1.6 bar]
Electrical Connection	Code "N" 5 pins size 10 conn., Code "C" 6 pins size 10 conn.
Enclosure	321 ss, IP65
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Shock	Withstands free fall to EIC 68-2-32 proc. 1
Weight	130 grams max

Dimensions (in mm)



Code N

Maximum diameter 25.7 mm



Code C

Electrical connection		Voltage units				
		IN+	**OUT+**	**OUT-**	**IN-**	**Case Earth**
C	"10-6 Bayonet"	A	B	C	D	F
N	"10-5 Screw"	1	2	3	4	5

Indicators and Accessories Pages 62-67

How to Order

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

4000 L S B10 00 N O U1

Series
4000

Bridge Resistance
L is 1000 ohms

Pressure Datum
S - sealed gauge; **A** absolute

Insert pressure range code from table below

Pressure Port see chart

Electrical Connection (mating connector sold separately)
N - Mil C-83723 size 10-5, screw lock connector;
(Mating connector part # 499855-0001 and clamp # 499855-0011)

C - Mil C-26482 size 10-6, bayonet lock connector
(Mating connector part # 166267-0006)

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

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

Pressure Ports

Code		
SS	**Inconel**	**Description**
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-3A, MS 33656E4

Indicators and Accessories Pages 62-67

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

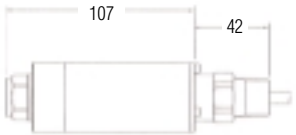
- Gauge, sealed and absolute models
- Submersible, general purpose and wash down enclosures
- IS models

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 thin film technology provides years of worry free measurements under demanding environmental conditions.

Specifications

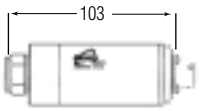
Input	
Pressure Range	1 bar to 690 bar; (10 to 10,000 psi)
Proof Pressure	2 x Full Scale (FS) for Stainless Steel Units
	1.5 x FS for Inconel Units
Burst Pressure	>35 x Fs <= 10 bar ranges
	>15 x FS <= 100 bar ranges
	>8 FS <= 690 bar ranges
Fatigue Life	3 million FS cycles
Performance	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	9.5 to 40 Vdc
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	-25° to 75° C (-13° to 167° F)
Operating Temperatures	-25° to 85° C (-13° to 185° F) elec. conn. code C G & L
	-20° to 50° C (-4° to 122° F) elec. conn. code M, 3
	-30° to 100° C (-22° to 212° F) process/media
Zero Tolerance	0.1% FS, typical
Span Tolerance	0.1% FS, typical
Zero Adjustment	+/- 10% (100% at factory) by potentiometer
Span Adjustment	17% to 130 % of span by potentiometer
Max. Loop Resistance	(Vs-9.5) 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	321 ss, 17-4 PH ss
	IP40 for gauge datum & electrical conn. code C, L
	IP65 for absolute and sealed datum codes C, L
	IP65 for electrical connection code G, 3 IP68 for electrical connection code M
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.05% FS/g for 1 bar (15 psi) range decreasing logarthmicaly to 0.0001% FS/g for 690 bar (10000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE ExII 1G, E Exia II CT4 (-40°C < T amb <75°C) Cert BASEEFA 02ATEX0040X Lloyds Register
Weight	Approx. 305 g (additional; cable 75 grams/m)

Lloyds Register



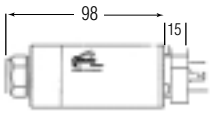
Code 3

½ - 14 NPT conduit



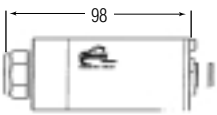
Code C

6 pin fixed plug size (10-6)



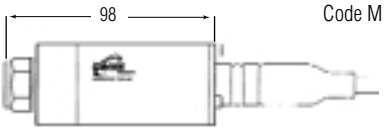
Code G

Fixed plug to DIN 43650 mate supplied



Code L

5 pin M12 x 1fixed plug



Code M

Immersible IP68 to 200m WG

Diameter 39

Indicators and Accessories Pages 62-67

How to Order

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

4700 B G B10 00 G 3 005 E

Series
4700 - series for bar ranges
Output Response
B - 4-20 mA
Pressure Datum
G gauge; **S** sealed; **A** absolute
(For compound ranges consult sales)
Insert pressure range code from table below
Pressure Port see chart
Electrical Connection
C - Fixed plug size 10-6, 3-20mm conduit
M - Submersible cable, to 200 meters
G - Fixed plug to DIN 43650 mating plug supplied
L - M12 x 1 (5 pin)
3 - 1/2 - NPT conduit
Approvals/Protection (For flame proof units see next page)
3 - CE; **G -** ATEX approved ExII 1G, EEx ia IIC T4 (-40< Ta <+75°C), galvanic isolators
Cable Length in meters (requires electrical connection code M or 3)
001 - 1 metre cable
999 - 999 metre cable
Static/Thermal Performance
E - 0.1%/0.8%; **F -** 0.1%/0.5%. 500mbar range performance code **E** only

4700 Model Bar Ranges	Range Code	Gauge (G)* Absolute (A) Sealed (S)
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, 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****

* For compound ranges consult sales
** Internal Inconnel fitting required external fitting can be SS.

Pressure Ports

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**	G1/2 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		
19	Plastic nose cone	
20	Nose cone with restrictor	
30	Nose cone w/ss Sink Weight	

Electrical connection		Wiring		
		(+)	**(-)**	**EARTH**
G	"DIN"	1	2	4
C	"10-6 Bayonet"	A	B	E
M	IP 68 cable	R	BL	DRAIN
E	M 12 x 1	1	2	4
3	Conduit	R	BL	DRAIN

R = Red BL = Blue

Indicators and Accessories Pages 62-67

4264 Series - High Performance, High Stability, with 5:1 factory Turndown Capability Flameproof Transmitters

- Gauge, sealed and absolute models
- Flameproof enclosure
- CE approved

The 4264 series provides precise repeatable measurements in a flameproof housing 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.

Specifications

Input	
Pressure Range	4 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)	8 to 40 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
Compensated Temperatures	-25° to 75° C (-13° to 167° F)
Operating Temperatures	-25° to 85° C (-13° to 185° F)
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	M20 thread giving access to terminal blocks, optional flameproof cable assembly
Enclosure	321 ss, 17-4 PH ss
	IP50 when used with approved cable assembly
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Acceleration	100g steady acceleration in any direction 0.05% FS/g for 1 bar (15 psi) range decreasing logarthmicaly to 0.0001% FS/g for 690 bar (10000 psi) range.
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE, Flameproof EEx d IIC T4 per CENELEC Cert BASEEFA 03ATEX0426X
Weight	Approx. 1.5Kg

Indicators and Accessories Pages 62-67

How to Order

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

4264 B G B10 00 4 F U E

Series
4264

Output
B - 4-20mA

Datum
G - Gauge **A -** Absolute **S -** Sealed gauge

Insert pressure range code from table below

Pressure Port, see chart

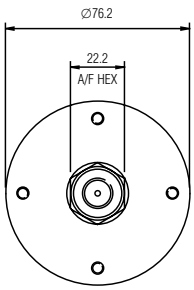
Electrical Connection
4 - Terminal block via M20 threaded aperture

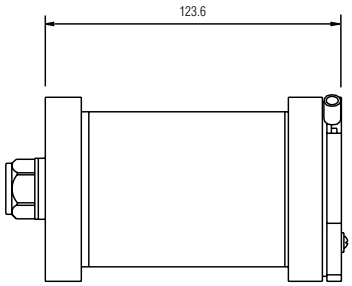
Approvals/Protection
F - Flameproof and CE Ex II2G EExd IIC T4 (-20<Ta<+85°C)

Cable Length
U - no cable fitted

Static/Thermal performance
E - 0.1%/0.8%

Dimensions (in mm)





4264 Model Bar Ranges	Range Code	Gauge (G) Absolute (A) Sealed (S)
0 to 6	**A60**	**G, A**
0 to 10	**B10**	**G, A, 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****

* For compound ranges, consult sales
** Internal Inconel fitting required external fitting can be SS

Pressure Ports for the 4264 series

Code		
SS	**Inconel**	**Description**
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-3A, MS 33656E4

Indicators and Accessories Pages 62-67

9000 Series CANbus Digital Output Pressure Tranducer

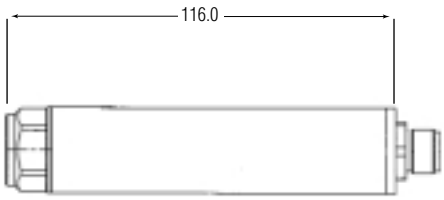
- High accuracy over wide operating temperature range T.E.B. ±0.2% Span, -40°C to +85°C
- Excellent long term stability <0.05% per year, non-cumulative
- Small size: 25mm diameter, 120mm length
- Isolated high speed CAN interface - ISO11898
- Programmable update rate
- Standard application interface - CANopen DS301 & DSP404
- In system programmable
- Self diagnostics - bridge fault detection, hours in service, watchdog, last calibration date, next calibration date
- Unsurpassed customer support - Rapid Development Kit

The 9000 CANBUS pressure transducer meets the demands of the test and measurement industry, including automotive and marine applications, with high levels of accuracy over a wide temperature range. The digital output in engineering units eliminates the need for user system calibration.

Designed to have a wide input voltage range, input to output isolation, immunity to noise and self-diagnostics the 9000 is ideal for electrically noisy environments or applications where earthing or grounding can be a problem.

Through the standard CANopen protocol multiple devices can be used on a single bus reducing user cabling.

Dimensions (in mm)



Specifications

Input	
Pressure Range	0 to 1 - 0 to 690 bar Gauge or Absolute
Proof Pressure	2 x FS (ranges <400b) 1.5 x FS (≥400b)
Burst Pressure	>35 x FS for ranges <= 6 bar >15 x FS for ranges >=100 bar >4 x FS for ranges <= 690 bar
Supply Voltage	7-30Vdc, 0.6W
Performance	
Long Term Stability	Zero drift <0.05% Full range out put non cumulative
Accuracy	± 0.1% Full Scale
Total Error Band	± 0.2% Full Scale
Compensated Temperature	-40° to 85°C
Operating Temperature	-40° to 85°C
Mechanical Configuration	
Pressure Port	(see table below)
Wetted Parts	17-4 PH or Inconel
Electrical Connection	5 pin M12 x 1, cable to IP68, others on request
Enclosure	SS
Vibration	<0.08%FRO/g 20Hz to 2000Hz, 35g
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE Emissions EN 61000-6-4, Immunity EN 61000-6-2
Weight	<180 grams

Connection Code

L	M12	(+)	(-)	Shield	CAN Hi	CAN Lo	
		2	3	1	4	5	

Indicators and Accessories Pages 62-67

How to Order

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

9000 1 G B10 0K L 3 000 A

Series
9000

Output
1 - Canbus

Datum
G - Gauge
A - Absolute
S - Sealed Gauge

Pressure Ranges - bar

A10	1	**B10**	10	**C10**	100
A16	1.6	**B16**	16	**C16**	160
A25	2.5	**B25**	25	**C25**	250
A40	4	**B40**	40	**C40**	400
A60	6	**B60**	60	**C60**	600
				C69	690

Pressure Adaptor

Stainless Steel	Inconel	Description
00	**0K**	G1/4 internal
A0	**AK**	G1/4 AT external
K0	**KK**	7/16-20 UNF-3A external
M0	**MK**	M14 x 1.5 external
P0	**PK**	G1/2 AT external
B0	**BK**	1/4-18 NPT external
G0	**GK**	1/2-14 NPT external
S0	**SK**	7/16-20 UNJF-3A, MS 33656F4

Performance Code
Static/Thermal
0.05/0.2

No cable fitted

CE Marked

Electrical Connection
L - M12 Industrial 5 pin
M - Cable to IP68

Accessories

Order Code	Description
557002	Restrictor Kit
499877-1000	Saddle Mounting Kit
562320-02M0	2m, unscreened, 5core, cable - Terminated to M12 male connector
562320-05M0	5m, unscreened, 5core, cable - Terminated to M12 male connector
562321	Rapid Development Kit - including 9V battery, M12 to 9 way D type cable terminated assembly, USB to CAN Interface, Gems start up CD ROM
562293	User manual
557749	M12, 5 pole duo field wireable connector with screw terminals

Indicators and Accessories Pages 62-67

1700 Series - Hygienic Pressure Transmitters

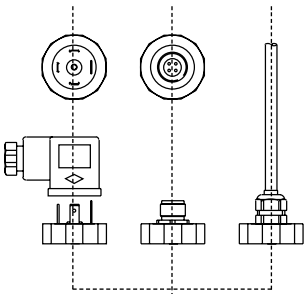
- Pressure ranges from 100 millibar to 40bar
- Sanitary or G1 process vonnections
- Voltage and current output models
- Temperature cooling options Available for 150° or 300°C operation

The 1700 series features a stainless steel diaphragm with various process connections suitable for dairy and pharmaceutical applications. The 1700 is suitable for both static and dynamic pressure measurement in the ranges from 100millibar to 40bar and is available with a choice of electrical outputs and connections.

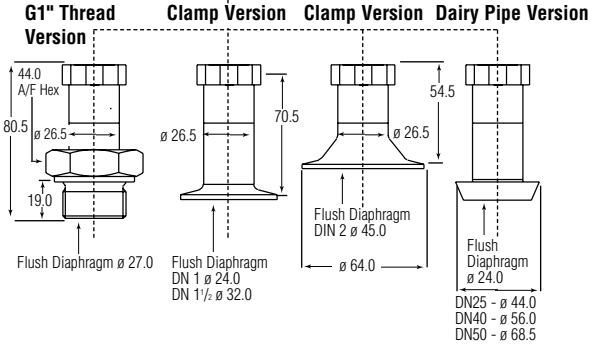
Specifications

Input	
Pressure range	0 to 40bar, Gauge & Absolute
Proof pressure	> 2 x full scale
Burst pressure	> 2 x full scale
Fatigue life	Designed for more than 100 million cycles
Performance	
Long term drift	± 0.2% span/annum
Accuracy	0.25%
Thermal error	1% (0° to 70°C), 2% for 100 and 250millibar ranges (0° to 50°C)
Compensated temperatures	-20° to 80°C
Operating temperatures	-25°C to 85°C (media -25°C to 125°C)
Zero tolerance	1% of span
Span tolerance	1% of span
Mechanical Configuration	
Pressure port	See ordering chart
Wetted parts	316 S/S: Seals Viton (G1 thread only)
Electrical connection	See ordering chart
Enclosure	304 S/S
Fill Fluid	Silicon oil or food grade
Vibration	10g rms, 20 - 2000Hz
Acceleration	10g
Shock	100g 11ms
Approvals	CE, Ex II 1G, EEx ia IIC T4
Weight	175gm
Voltage Output units	
Output	See ordering chart
Supply voltage (Vs)	12 to 36 Vdc
Supply voltage sensitivity	0.005% FS/Volt
Min. load resistance	10Kohm
Current consumption	15mA max
Current Output units	
Output	4-20mA 2 wire
Supply voltage (Vs)	12 to 36vdc (IS units 14-28 volts)
Supply voltage sensitivity	0.005% FS/Volt
Max. loop resistance	(Vs-12) x 50 ohms

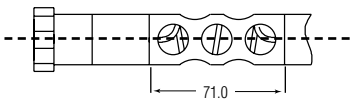
Fixed Plug to DIN 43650 **M12 x 1** **2m Cable**



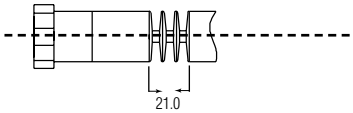
G1" Thread Version **Clamp Version** **Clamp Version** **Dairy Pipe Version**



Cooling Element 300°C



Cooling Element 150°C



Intrinsically Safe units length increased by 27mm

Indicators and Accessories Pages 62-67

How to Order

1700 B G A10 C2 2 1 0 G 3 2 0

Series
1700

Output
B - 4-20mA
S - 0-10V

Datum
G - Gauge
A - Absolute

Pressure Range
N10 - 0.10 bar; **N25 -** 0.25 bar; **N40 -** 0.40 bar; **N60 -** 0.60 bar;
A10 - 1 bar; **A16 -** 1.6 bar; **A40 -** 4 bar; **A60 -** 6 bar;
B10 - 10 bar; **B16 -** 16 bar; **B25 -** 25 bar; **B40 -** 40 bar;
1A0 - -1 to 0 bar

Pressure Connection
***F3** - G1" DIN 3852; ***C1** - Clamp DN1"; **C2** - Clamp DN 1 1/2";
***C3** - Clamp DN 2"; ***D1**[1] - Dairy Pipe DN 25; **D2**[1] - Dairy Pipe DN 40;
***D3**[1] - Dairy Pipe DN 50

Note[1] = For Dairy Pipe Mating Nut
* Not available for ranges ≤250mb
** Not available for ranges ≤400mb
*** Not available for ranges ≤600mb

Filling Fluid
1 - Silicon Oil
2 - Food compatible, Mobil DTEFM32
C - Halocarbon

Seal
0 - No seal
1 - Viton (Supplied with G1" Pressure Port only)

Diaphragm Material
0 - Stainless Steel

Electrical Connection
E - M12 x 1 (4 Pin)
F - Cable Gland including 2m Cable
G - Fixed Plug to DIN 43650

Approvals
3 - CE Mark
G - Intrinsic Safety Ex II 1G, EEx ia IIC T4 (-20<Ta<+60°C)

Accuracy
2 - ±0.25% (>0.4 bar)

Special Versions
0 - Standard
1 - Cooling Element up to 150°C
2 - Cooling Element up to 300°C
3[1] - Dairy Pipe Mating Nut

Please state media temperature, ambient temperature (max 85°C) and mounting orientation

Pin Configuration

		Electrical Connection		
		DIN 43650	M12x1 (4-pin)	Cable
2-wire-system	Supply + Supply - Ground	1 2 Ground pin	1 2 4	White Brown Drain
3-wire-system	Supply + Supply - Signal + Ground	1 2 3 Ground pin	1 2 3 4	White Brown Green Drain

Indicators and Accessories Pages 62-67

1701 Series - Flush Diaphragm Pressure Transmitters

- Stainless steel wetted parts with flush diaphragm
- G1/2, G3/4 or G1 threads and sanitary
- Voltage and current output models

The 1701 series features a stainless steel flush diaphragm on a threaded process connection making it ideal for slurries, suspended solids in liquids and viscous liquids where recessed diaphragms could become blocked. The 1701 is suitable for both static and dynamic pressure measurement in the ranges from 1bar to 400bar and is available with a choice of electrical outputs and connections.

Specifications

Input	
Pressure range	0 to 400bar Gauge, 0 to 25bar Absolute
Proof pressure	>2 x full scale (1.5 x for 400 bar)
Burst pressure	>2 x full scale
Fatigue life	Designed for more than 100 million cycles
Performance	
Long term drift	±0.3% span/annum
Accuracy	±0.25%
Thermal error	2% max
Compensated temperatures	-20° to 80°C
Operating temperatures	-25°C to 85°C (media -25°C to 125°C)
Zero tolerance	1% of span
Span tolerance	1% of span
Mechanical Configuration	
Pressure port	See ordering chart
Wetted parts	316 S/S: Seals <100bar Viton >100bar Nitrite
Electrical connection	See ordering chart
Enclosure	304 S/S
Fill Fluid	Silicon oil or food grade
Vibration	10g rms, 20 - 2000Hz
Acceleration	10g
Shock	100g 11ms
Approvals	CE, Ex II 1G, Eex ia IIC T4
Weight	225gm
Voltage Output units	
Output	See ordering chart
Supply voltage (Vs)	12 to 36 Vdc
Supply voltage sensitivity	0.005% FS/Volt
Min. load resistance	10Kohm
Current consumption	15mA max
Current Output units	
Output	4-20mA 2 wire
Supply voltage (Vs)	12 to 36vdc (IS units 14-28 volts)
Supply voltage sensitivity	0.005% FS/Volt
Max. loop resistance	(Vs-12) x 50 ohms

Dimensions (in mm)

MECHANICAL CONNECTION
Inch Thread

Fixed Plug to DIN 43650 (1701X-G3) | **M12 x 1 (1701X-E3)** | **2m Cable (1701X-F3)**

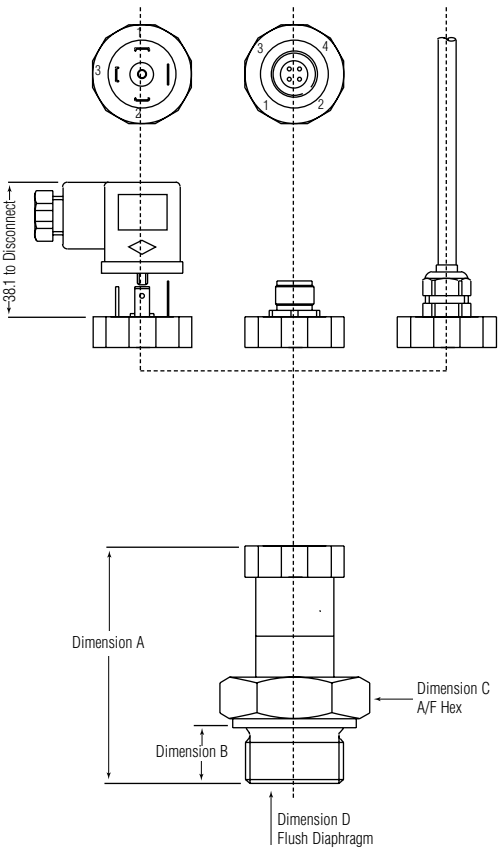


Table of Dimensions

	Dim A	Dim B	Dim C	Dim D
G1/2" Thread	76.5	15.0	27.0	18.0
G3/4" Thread	78.5	16.0	34.0	22.0
G 1" Thread	80.5	19.0	44.0	27.0

Intrinsically Safe units length increased by 27mm

Indicators and Accessories Pages 62-67

How to Order

1701	B	G	A10	F1	1	1	0	G	3	2	0

Series
1701

Output
B - 4-20mA
S - 0-10V

Datum
G - Gauge
A - Absolute -1 to 25 bar

Pressure Range
A10 - 1 bar; **A16 -** 1.6 bar; **A25 -** 2.5 bar; **A40 -** 4 bar; **A60 -** 6 bar;
B10 - 10 bar; **B16 -** 16 bar; **B25 -** 25 bar; **B40 -** 40 bar; **B60 -** 60 bar;
C 10 - 100 bar; **C16 -** 160 bar; **C25 -** 250 bar; **C40 -** 400 bar; **1A0 -** -1 to 0 bar

Pressure Connection
***F1 -** G1/2" DIN 3852; **F2 -** G3/4" DIN 3852; **F3 -** G1" DIN 3852
*Not available with ranges ≤1.6 bar

Filling Fluid
1 - Silicon Oil
2 - Food compatible, Mobil DTEFM32

Seal
1 - Viton <100 bar
5 - Nitrile ≥100 bar

Diaphragm Material
0 - Stainless Steel

Electrical Connection
E - M12 x 1 (4 Pin)
F - Cable Gland including 2m Cable
G - Fixed Plug to DIN 43650

Approvals
3 - CE Mark
G - Intrinsic Safety Ex II 1G, EEx ia IIC T4 (-20<Ta<+60°C)

Accuracy
2 - ±0.25%

Special Versions
0 - Standard

Pin Configuration

		Electrical Connection		
		DIN 43650	M12x1 (4-pin)	Cable
2-wire-system	Supply + Supply - Ground	1 2 Ground pin	1 2 4	White Brown Drain
3-wire-system	Supply + Supply - Signal + Ground	1 2 3 Ground pin	1 2 3 4	White Brown Green Drain

Indicators and Accessories Pages 62-67

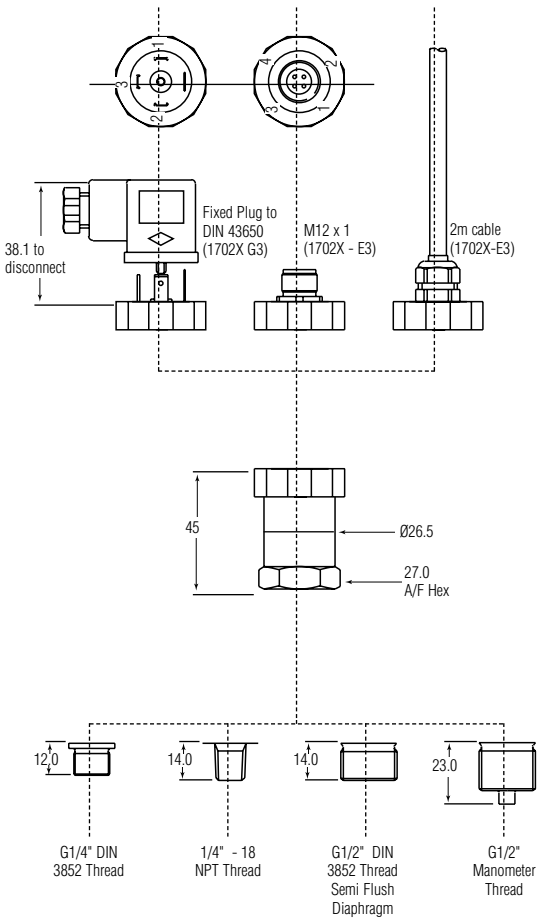
1702 Series - Fixed Range Low Pressure Transmitters

- Pressure ranges from 40mb to 1 bar
- 316 S/S Diaphragm
- Voltage and current output models
- Choice of enclosures and pressure fittings

The Gems 1702 low range pressure transmitter is ideal for pneumatics, process control and chemical processes. Featuring a 316 S/S diaphragm and Viton 'O' ring the 1702 is compatible with many corrosive medias. A choice of process connections makes the units suitable for direct pipe mounting whilst optional electrical outputs and connections allow interfacing with most systems.

Specifications

Input	
Pressure range	40mbar to 1bG. 100mbar to 1bA
Proof pressure	>2 x full scale
Burst pressure	>2 x full scale
Fatigue life	Designed for more than 100 million cycles
Performance	
Long term drift	±0.1% span/annum
Accuracy	±0.25%
Thermal error	1% (0° to 70°C), 2% for 40 to 250millibar ranges (0° to 50°C)
Compensated temperatures	-20° to 80°C
Operating temperatures	-25°C to 85°C (media -25°C to 125°C)
Zero tolerance	1% of span
Span tolerance	1% of span
Mechanical Configuration	
Pressure port	See ordering chart
Wetted parts	316 S/S, Viton
Electrical connection	See ordering chart
Enclosure	304 S/S
Vibration	10g rms, 20 - 2000Hz
Acceleration	10g
Shock	100g 11ms
Weight	140gm
Voltage Output units	
Output	See ordering chart
Supply voltage (Vs)	14 to 36 Vdc
Supply voltage sensitivity	0.005% FS/Volt
Min. load resistance	10Kohm
Current consumption	7mA max
Current Output units	
Output	4-20mA 2 wire
Supply voltage (Vs)	12 to 36vdc
Supply voltage sensitivity	0.005% FS/Volt
Max. loop resistance	(Vs-12) x 50 ohms



Indicators and Accessories Pages 62-67

How to Order

1702	B	G	A10	02	0	1	0	G	3	2	0

Series
1702

Output
B - 4-20mA
S - 0-10V

Datum
G - Gauge
A - Absolute ≥ 100mbar

Pressure Range
N04 - 40m bar; **N06 -** 60mbar; **N10 -** 100mbar;
N25 - 250mbar; **N40 -** 400mbar; **N60 -** 600mbar

Pressure Connection
01 - G1/4 EXT
02 - 1/4 - 18 NPT EXT
03 - G1/2 Manometer
FO - G1/2 Semi-Flush

Seal
1 - Viton

Diaphragm Material
0 - Stainless Steel

Electrical Connection
E - M12 x 1 (4 Pin)
F - Cable Gland including 2m Cable
G - Fixed Plug to DIN 43650

Approvals
3 - CE Mark

Accuracy
2 - 0.25%

Special Versions
0 - Standard

Pin Configuration

		Electrical Connection		
		DIN 43650	M12x1 (4-pin)	Cable
2-wire-system	Supply + Supply - Ground	1 2 Ground pin	1 2 4	White Brown Drain
3-wire-system	Supply + Supply - Signal + Ground	1 2 3 Ground pin	1 2 3 4	White Brown Green Drain

Indicators and Accessories Pages 62-67

5000 Series Low Range Pressure Transducer

- Submersible and General Purpose Models
- Open Faced for Viscous Liquids
- High Proof Pressures

The 5000 Series features a sturdy ceramic diaphragm and precision capacitance technology to detect minute pressure variations, while withstanding large pressure spikes. The tough ceramic sensor is housed in a stainless steel case to ensure performance in the most demanding applications. Both voltage and 4-20mA outputs are available at time of order. A switch and potentiometer can be accessed for field adjustment of range with 3:1 ranging capability.

Specifications

Input	
Pressure Range	0 to 25mb to 0 to 1 bar
Proof Pressure	2 bar for ranges 200mb and below 4 bar for ranges 201mb to 350mb 7 bar ranges 351mb to 1 bar
Burst Pressure	3 bar for 70mb and below 4 bar for 71mb to 200mb 6 bar for 201mb to 350mb 10 bar for bar ranges 351mb to 1 bar
Fatigue Life	10 million FS cycles
Performance	
Long Term Stability	.25% span/annum
Accuracy	.2% span max
Thermal Error	2% span max
Compensated Temperatures	-20°C to 60°C (-5° to 140°F)
Operating Temperatures	-25°C to +85°C (-15° to 185°F) Electrical Code G and L -20°C to +50°C (-5° to 120°F) Electrical Code M and 3 -40°C to +100°C (-40° to 212°F) Process media
Zero Tolerance	0.1% span
Span Tolerance	0.1% span
Mounting Effects	.25% span max
Response Time	5ms
Supply Voltage Sensitivity	.01% span/volt
Zero Adjustment	±10% (by potentiometer)
Span Adjustment	±10% (by potentiometer)
Mechanical Configuration	
Pressure Port	(See ordering guide)
***Wetted Parts**	S/S to UNS 31803; Inconel 625, Ceramic & Nitrile
Electrical Connection	(See ordering guide)
Enclosure	Code M IP68 Submersible Code G IP65
Approvals	CE, Lloyds Register ExII 1G, EEx ia IIB T4 (-20<Ta<+75°C)
Weight	330gms (excluding cable)
Individual Specifications	
Voltage Output units	
Output	(See ordering guide)
Supply Voltage (Vs)	8 to 35V Max
Current Output Unit	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	9 to 35 Vdc
Max. Loop Resistance	(Vs-9) x 50 ohms

Lloyds Register

* A version with PVDF, Ceramic and Nitrile wetted parts is available.

ORDER CODE **5500** **X** **G** **XXX** **M** **3** **XXX** **A**

see output, range and cable length options, in How to Order Section.

How to Order

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

SELECT **5000** **B** **G** **N20** **BK** **M** **3** **001** **A**

Series
5000

Output
B - 4–20mA **C -** 1–6Vdc **F -** 0.1–5.1Vdc
H - 1–5Vdc **J -** 0.5–5.5Vdc **R -** 0–5Vdc

Pressure Datum
G - gauge

Pressure range code*
M70 - 25 to 70mb
N20 - 71mb to 200mb
N35 - 201mb to 350mb
A10 - 351mb to 1 bar

* specify range setting required at time of order
eg. 0 to 75mb, 0 to 1mwg etc

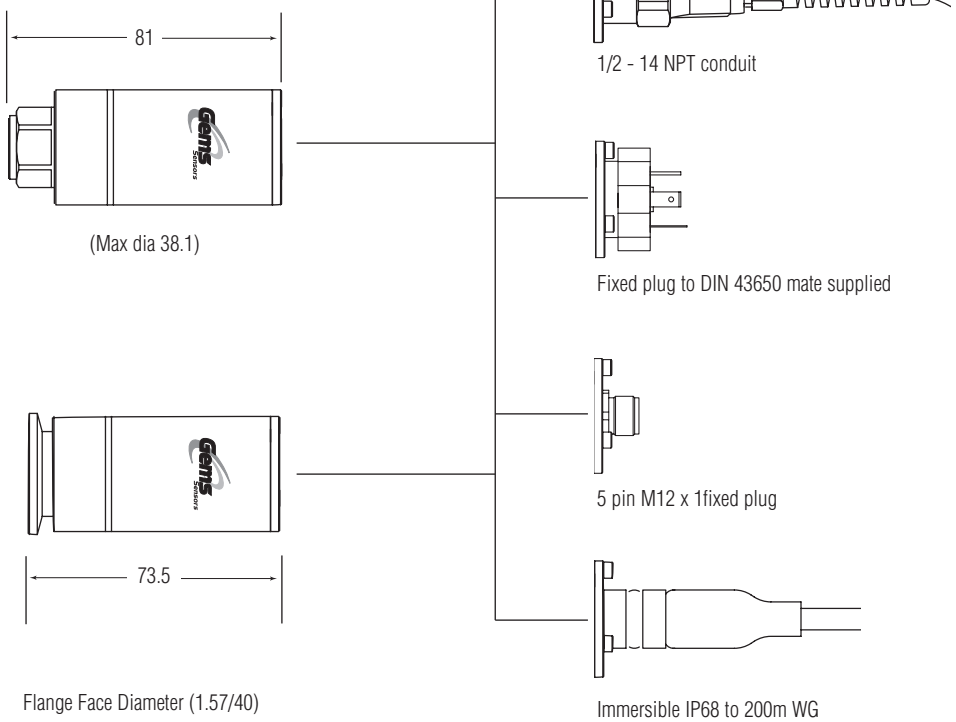
Pressure Connection
OO - G1/4 Internal
OF - KF25 Flange
AK - G 1/4 external
BK - 1/4 - 18NPT external
KK - 7/16 - 20unf - 3A external
MK - M14x1.5 external
19 - Acetal nose cone

Electrical Connection
3 - 1/2 - 14 NPT conduit
G - Fixed Plug to DIN 43650, Mating Connector Supplied
L - M12 x 1 (5 pin)
M - Immersible Cable Assembly, IP68

Approvals
3 - CE Marked
G - ATEX approved Ex11 1G EEx ia IIB T4 (-20< Ta <+75°)

Cable Length
000 - No Cable
001 - 1 metre
999 - 999 metres etc

Static/Thermal Error Band
A - 0.25%/2%



Electrical Connection		Wiring mA			Wiring Voltage			
		+	-	EARTH	+IN	0V	+OP	EARTH
G	DIN	PIN 1	2	4	1	2	3	4
M	IP68 CABLE	RED	BLUE	DRAIN	RED	WHITE	YELLOW	DRAIN
3	CONDUIT	RED	BLUE	DRAIN	RED	WHITE	YELLOW	DRAIN

Indicators and Accessories Pages 62-67

5266 Very Low Range Differential Pressure Transmitter

- 24 VAC/DC Excitation
- Excellent long term stability
- Easy to install
- Voltage or 4-20mA two wire output

Gems 5266 low range pressure transmitter measures gauge or differential pressure by means of a stainless steel diaphragm, and capacitive sensor. The model 5266 incorporates an ASIC to provide a temperature compensated high level analogue out put over the temperature range -18 to +65°C. Mounted in a glass filled polyester case with pipe fittings the 5266 can measure pressures in the range 100 - 5000 pascals.

The 5266 untilises an all stainless steel microtig welded sensor. The tensioned stainless steel diaphragm and insulated stainless steel electrode, positioned close the diaphragm, form a variable capacitor. Positive pressure moves the diaphragm toward the electrode, increasing the capacitance.

A decrese in pressure moves the diaphragm away from the electrode, decreasing the capacitance. The change in capacitance is detected and converted to a linear DC electrical signal by Gems' unique electronic circuit.

The micro-tig welded tension sensor allows up to 69 kPa overpressure (in either direction) with no damage to the unit. In addition, the sensor parts have thermally matched coefficients, which promote improved temperature performance and excellent long-term stability

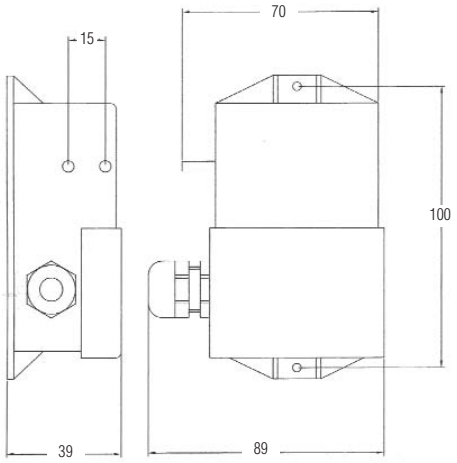
Specifications

Input		
Pressure Range	Unidirectional 0-1000 Pascals to 0 to 5000 Pascals Bi-directional ± 50 Pascals to ±2500 Pascals	
Proof Pressure	100 and 250 kPa range 500 Pascal range 1000 to 5000 Pascal range	14 kPa 35kPa 69kPa
Line Pressure	69kPa max.	
Performance		
Long Term Drift	0.5%/a	
Accuracy	±1% F.S.	
Thermal Error	±5% F.S.	
Compensated Temperature	-18 to 65°C	
Operable Temperature	-18 to 65°C	
Zero Tolerance	±1% F.S. (10V output ±0.5%)	
Span Tolerance	±1% F.S. (10V output ±0.5%)	
Mechanical Construction		
Pressure Ports	6.2mm	
Wetted Parts	Compatible with air or non-conductive gases	
Electrical Connection	Via terminal strip	
Enclosure		
Housing	Fire retardant glass filled polyester	
Approvals	CE	
Weight	150grams	
Individual Specifications		
Voltage Output units		
Supply Voltage	5V output 9 to 30 Vdc/a.c 10V output 12 to 30 Vdc/a.c	
Output	0 to 5Vdc, 0 to 10Vdc For bi-directional ranges output at zero pressure 2.5V and 5Vdc respectively	
Output Impedance	1000 ohms	
Current Output Unit		
Supply Voltage (Vs)	24Vdc	
Output	4-20mA two wire for bi-directional ranges output at 0 pressure 12mA	
Loop Resistance	(Vs-9) x 50 ohms	

Applications

- Heating, Ventilating and Air Conditioning (HVAC)
- Energy Management Systems
- Variable Air Volumes and Fan Control (VAV)
- Environmental Pollution Control
- Static Duct and Clean Room Pressures
- Fume Hood Control
- Oven Pressurisation and Furnace Draft Controls

Indicators and Accessories Pages 62-67



How to Order

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

SELECT Series **5266** **500L** **D** **H** **TI** **C**

Accuracy

±1%

Pressure Range (Pascals)

Termination

100L - 0 to 100 050L ±50
250L - 0 to 250 100L ±100
500L - 0 to 500 250L ±250
10CL - 0 to 1000 500L ±500
25CL - 0 to 2500 25CL ±2500
50CL - 0 to 5000

Datum

D - Uni-directional
B - Bi-directional

Excitation - Output

AC 24Vdc/a.c. - 0 to 10V
AB 24Vdc/a.c. - 0 to 5V
H 24Vdc - 4-20mA

Electrical

TI Terminal Block

C Series

C

Indicators and Accessories Pages 62-67

Immersible Pressure Transducers

- Immersible to 200m (650')
- Millivolt and current outputs
- All welded stainless steel construction
- Factory set or customer adjustable ranges (mwg, in.w.c.)
- Lightning protected

These pages highlight Gems extensive range of lightning protected waterproof pressure transducers and transmitters for fluid pressure, level and depth measurement in Instrumentation Control and Automation systems.

Designed for easy care, low cost of ownership and virtually maintenance free operation, these products have been proven in numerous installations in the water and waste industry.

Various configurations and electrical outputs are available to meet particular operating requirements, providing outputs compatible with loggers, telemetry and controllers.

The stainless steel diaphragm used in the construction of Gems' immersible products is especially suitable for the vast majority of liquid level measurements. For salt water applications gems offers Inconel or Hastelloy C and Duplex designs.

The charts below outline the features of our range and list the locations of the appropriate specifications.

CE

	OUTPUT	Remote electronics	Integral electronics	Lowest Range	Customer Adjustable?	Diameter (mm)
4000K	0-30mV	when matched with our 1025-20, see page 63	No	0-2mwg	20% to 125% span	25.7
2400A	0-100mV	No	No	0-10mwg	No	19
2400B	4-20mA	Yes	No	0-4mwg	No	19
2600A	0-100mV	when matched with our 1025-20, see page 63	No	0-2mwg	17% to 100% span	27.3
2600B	4-20mA	No	Yes	0-5mwg	No	27.3
2600R	0 to 5V	No	Yes	0-5mwg	No	27.3
2600S	0 to 10V	No	Yes	0-5mwg	No	27.3
4700B	4-20mA	No	Yes	0-2mwg	25% - 125%	39
5000B	4-20mA	No	Yes	0-250mmwg	Yes	39
5000R	0-5V	No	Yes	0-250mmwg	Yes	39
9300	4-20mA	No	Yes	0-4mwg	Yes	20
9500	4-20mA/SDI12	No	Yes	0-4mwg	Yes	20

	Static Error	Thermal Error 8-25°c	Specification page	Ordering info page
4000K-J	0.10%	0.20%	24	25
4000K-K	0.10%	0.15%	24	25
4000K-L	0.08%	0.15%	24	25
4000K-M	0.08%	0.05%	24	25
2400-A	0.25%	0.25%	46	46
2400-B	0.25%	0.25%	46	46
2600-A	0.25%	0.25%	5	6
2600-B	0.10%	0.15%	5	6
2600R/S	0.10%	0.15%	5	6
6700-B	0.15%	0.25%	18	19
4700-B-E	0.10%	0.15%	28	29
4700-B-F	0.10%	0.10%	28	29
5000-A	0.2%	0.5%	40	41
9300	0.05%	0.1% (-5 to 45°C)	47	47
9500	0.05%	0.1% (-5 to 45°C)	48	48

Indicators and Accessories Page 49

6700 Series-Stable Immersible Transmitters with Turndown Capabilities - see page 18

- 5 : 1 customer adjustment
- Immersible to 200m

4000 Series-High Performance, Immersible Pressure Transducers - see page 26

- High Accuracy with low thermal errors
- Ranges from 2 mwg

2400 Slimline Borehole, Transducers/Transmitters - see page 46

- Triple sealed to ensure immersible integrity
- <10mseconds switch on/settling period
- 3/4 inch diameter

2600 Series-Immersible Pressure Transducers - see page 5

- Immersible to 200m (650')
- Millivolt, Voltage and Current Outputs Available
- All Stainless Steel construction
- Factory set ranges (mwg, in.w.c.)

4700 Series-High Performance, High Stability Transmitters - see page 28

- 5 : 1 Turndown
- IS Model Available

5000 Series-Low Pressure Transducer - see page 40

- Low ranges from 0.25 mm wg
- Open Face option
- Sea-Water compatable

9300 Series - Slimline Groundwater Monitoring Transmitters - see page 47

- Remote Ranging
- 20mm diameter

DCL 9500 Series - Slimline Groundwater Monitoring Transmitters - see page 48

- Remote Ranging
- 20mm diameter
- SDI-12 Communications, RS485, 4 to 20mA
- 318 S/S wetted parts
- Total error band <±0.1% FS (-5 to +45°C)

2400 Slimline Borehole Transducer/Transmitters

- Triple sealed to ensure immersible integrity
- <10ms switch on/settling period
- 19mm diameter

Gems Sensors 2400 Series immersible pressure transducer has been specifically designed to met the rigours of long term immersibility. A custom designed hermetic header guarantees that water cannot enter the transducer even if the cable sheath is damaged during use. The large bore vent tube is connected directly to the back of the sensor which provides rapid venting, even on the longest cable run. The sensor itself is impervious to the effects of water guaranteeing long service life even in areas of high humidity, which can cause condensation. The all welded electronics enclosure is completely segregated from all other areas with the electronics themselves designed to provide fast switch on and settling to ensure maximum battery life and ease of calibration.

Specifications

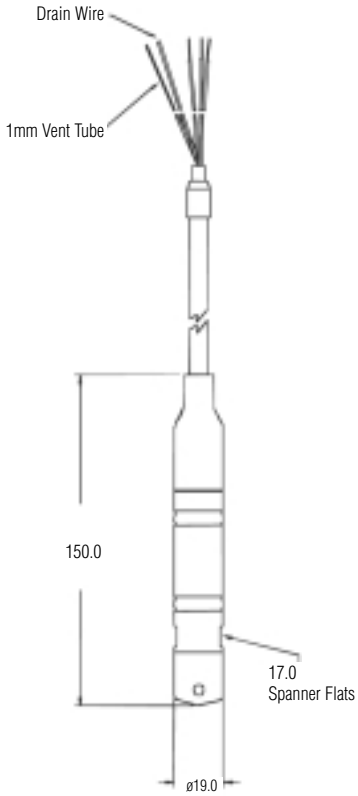
Input	
Pressure Range	0 to 4 to 0 to 200mwg (mA & V) 0 to 10, 20, 50,100, 200mwg (mV)
Proof Pressure	1.5 x Fs nominal range
Burst Pressure	3 x Fs
Fatigue Life	Designed for more than 100 million FS cycles
Performance	
Long Term Drift	0.2% FS/year (non-cumulative)
Accuracy	0.25% FS typical
Thermal Error	0.5% Typical 0-50°C
Compensated Temperatures	-10° to +50°C
Operating Temperatures	-40° to +80°C
Zero Tolerance	1% of span
Mechanical Configuration	
Pressure Port	G1/4" AT external fitted with nosecone
Wetted Parts	316 Stainless Steel, Polyurethane, Acetal
Electrical Connection	Polyurethane Cable
Enclosure	IP68 to 200mwg
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE
Weight	Approx. 100 grams (additional; cable 75 g/m)

Individual Specifications

Voltage Output units	
Output	0 to 10V
Supply Voltage (Vs)	13 to 28 Vdc
Supply Voltage Sensitivity	0.026% span/V
Min. Load Resistance	(FS output / 2) Kohms
Current Consumption	Approx 6 mA @ 8Vdc
Current Output units	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	24 Vdc, (8-28 Vdc)
Supply Voltage Sensitivity	0.026% span/V
Max. Loop Resistance	(Vs-7) x 50 ohms
Millivolt units	
Output	100mV ±1mV
Supply Voltage	10Vdc regulated (15Vdc max)
Bridge Resistance	3K5 ± 20% @ 25°C
Sink Weight	P/N 562266

Wiring Details	MV	MA	Voltage
Red	+Ve excitation	+Ve	+Ve in
Yellow	+Ve output	-	+Ve out
White	-Ve excitation	-	Common
Blue	-Ve output	-Ve	-
Drain	Earth	Earth	Earth

Dimensions (in mm)



How to Order

2400 B 2 010

Series

Cable Length
001 = 1 metre, 999 = 999 metres etc

Code	Millivolt
1	10mWG
2	20mWG
3	50mWG
4	100mWG
5	200mWG

Code	(mA/V)*
1	4mWG to 10mWG
2	11mWG to 20mWG
3	21mWG to 40mWG
4	41mWG to 100mWG
5	101mWG to 200mWG

Code	Electrical Output
A	100mV Not Rangeable
B*	4-20mA
S*	0-10Vdc

* For MA & Voltage units specify level range required at time of order.

DCL 9300 Series - Digitally Compensated Level Transmitter

- User Rangeable
- Total error band <±0.1% FS (-5 to +45°C)
- In-situ calibration
- Range 4mWG to 100mWG
- 20mm diameter

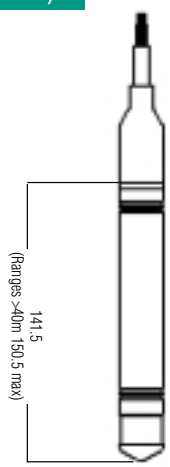
The DCL 9300 Series Transmitter offers unprecedented levels of long term accuracy for level measurement. Using digital compensation techniques to correct for errors due to temperature, specific gravity and local altitude the DCL 9300 offers a version that can easily be adjusted on site and reverse acting options are also available.

The DCL can be supplied in ranges from 4mWG to 100mWG and is operable over -5 to 45°C with a total error band of <±0.1%FS. The 20mm diameter makes it suitable for small bore installations.

Specifications

Input	
Pressure Ranges	0 to 4 to 0 to 100mwg 0.4 to 10 bar
Proof Pressure	1.5 x Fs nominal range
Burst Pressure	3 x Fs
Fatigue Life	Designed for more than 100 million FS cycles
Electrical	
Output	4-20mA
Supply Voltage	8 to 30Vdc
Warm Up Time	250ms
Surge Protection	EN61000-4-5 ±4kv
Performance	
Long Term Drift	±0.05% year
Accuracy	±0.05%
Total Error Band	<±0.1% FS (-5 to +45°C)
Compensated Temperatures	-5 to 45°C
Operating Temperatures	-25 to +70°C (non-freezing)
Mechanical Configuration	
Pressure Port	Nosecone (M16 x 1.5 for calibration)
Wetted Parts	318 Stainless Steel, Polyurethane, Acetal, Nitrile
Electrical Connection	Polyurethane Cable
Enclosure	IP68 to 200mwg
Vibration	35g peak sinusoidal, 5 to 2000 Hz
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE EN61000-6-2, EN61000-6-3
Weight	Approx. 100 grams (additional, cable 75 g/m)

Dimensions (in mm)



How to Order

9300 02 P 01 075M 0100M

Series

Output
01 Factory set 4-20mA
02 Factory set reversed 20-4mA
***03** Rangeable (set 4-20mA)
***04** Rangeable (reversed set 20-4mA)
***Via** Interface module 563008

Measurand
L Level
P Pressure

Pressure Connection
00 Nosecone
01 G1/4" external
02 1/4" NPT external

Calibrated Range
XXXM MWG (004M to 100M)
XXXF FtWG (012F to 330F)
XXXP PSI (006P to 145P)
XXBX Bar (00B4 to 10B0)

Cable Length
XXXXM Cable length in metres

Wiring Details

	mA
Red	+Ve
Blue	-Ve
Green	Comms

Indicators and Accessories Page 49

DCL 9500 Series - Slimline Groundwater Monitoring Transmitters

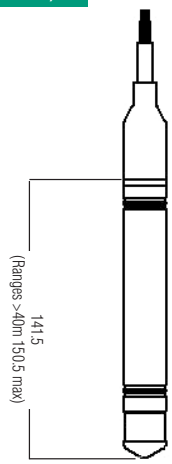
- Remote ranging via pc interface
- 20mm diameter
- SDI-12 communications
- 318 S/S wetted parts
- Total error band <±0.1% FS (-5 to +45°C)

The 9500 series of pressure transducers from Gems Sensors has been designed specifically to meet the rigorous conditions for ground water monitoring while providing ultimate performance. The 9500 has built in specific gravity compensation, so gives a true level reading even when the media is subject to temperature changes over the ranges -5 to +45°C. Manufactured with 318 stainless steel wetted parts, which provide excellent corrosion resistance, the 9500 can be adjusted via the cable by means of a PC or hand-held interface which reduces the installation time and removes the need to withdraw the unit from the media for calibration. The SDI-12 communicating version offers minimal current draw for battery powered applications.

Specifications

Input	
Pressure Ranges	0 to 4 to 0 to 100mwg
Proof Pressure	1.5 x Fs nominal range
Burst Pressure	3 x Fs
Fatigue Life	Designed for more than 100 million FS cycles
Electrical	
Output	SDI-12 (Temp output ± 0.5°C) or 4-20mA
Supply Voltage	8-30Vdc
Current Consumption	Standby less than 450µA
	Active less than 4mA average
Surge Protection	61000-4-5 ± 4kv
Performance	
Long Term Drift	±0.05% year
Accuracy	±0.05%
Total Error Band	<±0.1% FS (-5 to +45°C)
Compensated Temperatures	-5 to 45°C
Operating Temperatures	-25 to +70°C (non-freezing)
Mechanical Configuration	
Pressure Port	Nosecone (M16 x 1.5 for calibration)
Wetted Parts	318 Stainless Steel, Polyurethane, Acetal, Nitrile
Electrical Connection	Polyurethane Cable
Enclosure	IP68 to 200mwg
Shock	Withstands free fall to IEC 68-2-32 procedure 1
Approvals	CE
Weight	Approx. 100 grams (additional, cable 75 g/m)

Dimensions (in mm)



How to Order

9500 05 L 01 0100M 0060M

Series

Output
05 SDI 12
03 4-20mA

Measurand
L Level
P Pressure

Pressure Connection
00 Nosecone
01 G1/4" external
02 1/4" NPT external

Calibrated Range
XXXM MWG (004M to 100M)
XXXF FtWG (012F to 330F)
XXXP PSI (006P to 145P)
XXBX Bar (00B4 to 10B0)

Cable Length
XXXXM Cable length in metres (MAX 0060 for SDI-12)

Wiring Details

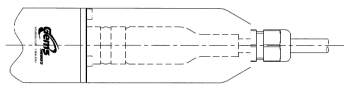
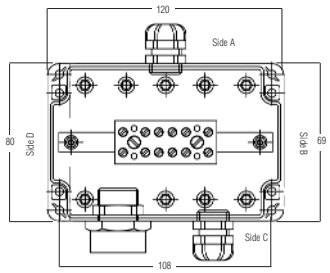
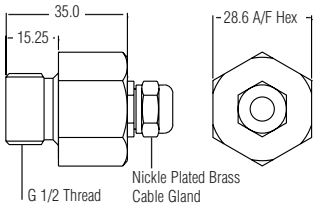
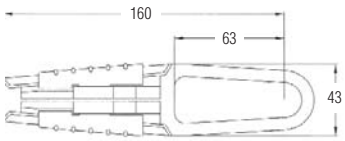
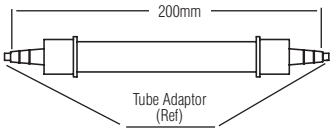
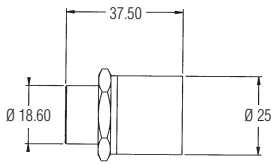
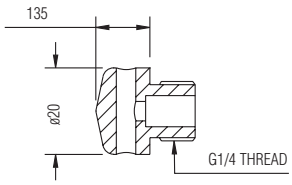
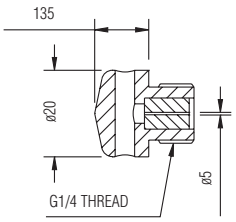
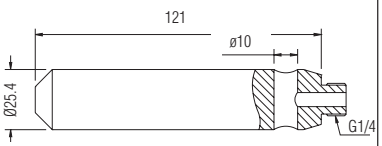
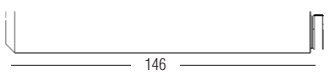
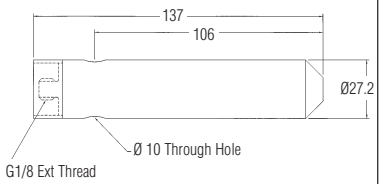
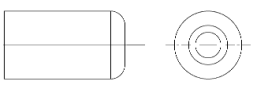
	SDI-12	MA
Red	Positive excitation	+Ve
Blue	Negative excitation	-Ve
Green	SDI-12	Comms

Indicators and Accessories Page 49

Accessories for Immersible Products

This range of accessories is designed for use with Gems Sensors immersible products and can be supplied fitted to the units or supplied as separate items.

Nose cone and sink weights for the 2600 and 2800 series can be found in the respective sections.

Description	Order code	Used with	Description	Order code	Used with
Anti-Fouling Cover Kit 	**562923**	4700-M 5000-M 6700-M	Junction Box with breather drain 	**557737**	2400-M 2600-M 2800-M 4000-M 4700-M 5000-M 6700-M 9500
G ½ gland plate cable mount adaptor 	**563195**		Cable Support Straight cable suspension 	**557738**	2400-M 2600-M 2800-M 4000-M 4700-M 5000-M 6700-M 9500
Dessicator 	**195316**	2400-M 2600-M 2800-M 4000-M 4700-M 5000-M 6700-M 9500-M	Calibration Adaptor 	**563105**	9300 9500
	Adaptor Code			**Adaptor Code**	
Plastic Nosecone Part No. 555825-0001 	**19**	4000K	Nose cone with restrictor Part No. 555825-0003 	**20**	4000K
Sink weight nose cone Part No. 555825-0003 	**30**	4000K-M 4700-M 6700-M 5000-M	Sink weight nose cone Part No. 562685-02 	**562685**	9500
Sink weight nose cone Part No. 560595-29 	**29**	2600-M 2800-M	Rear mounted sink weight (5 required) 	**562685-01**	2400-M 2600-M 2800-M 4000-M 4700-M 5000-M 6700-M 9500

209 Series - Industrial OEM Pressure Transducer

- Sensing ranges from vacuum
- Rugged stainless steel and Valox® housings
- Ideal for high shock and vibration applications

The 209 Series pressure transducers are designed specifically for industrial applications with demanding price and performance requirements. they offer exceptional reliability in typical industrial grade environments. 209 Series transducers operate on low-cost, unregulated DS power, and over a wide temperature band with both liquids and gases. Designed for harsh environments, they are suitable for use in high shock and vibration applications. Stainless steel and Valox® housings are small and lightweight for easy integration into compact systems. The standard feature set of the 209 Series delivers exceptional performance in extreme environmental conditions at a price that OEMs will appreciate.

1/2" Conduit/Terminal Block

Cable Anchor

3-pin Packard Connector

Hirschmann Connector

Specifications

Input	
Pressure Range	0 to 1 to 0 to 10,000psi
Proof Pressure	See ordering chart
Burst Pressure	See ordering chart
Fatigue Life	>1 million cycles
Performance	
Supply Voltage (Vs)	9-30 Vdc (5 Vdc on 0.5-4.5 Vdc units)
Long Term Drift	0.5% FS/year
Accuracy	±0.25% FS
Thermal Error Zero	±0.036% FS/°C (±0.2% FS/°F)
Thermal Error Span	±0.030% FS/°C (±0.015% FS/°F)
Compensated Temperatures	-20°C to +80°C (-4° to 176°F)
Operating Temperatures	-40°C to +85°C (-40° to +185°F)
Storage Temperatures	-40°C to +85°C (-40° to +185°F)
Zero Tolerance	1% of span
Span Tolerance	1% of span
Response Time	5 ms
Mechanical Configuration	
Pressure Port	See ordering chart
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See Dimensions chart
Enclosure	Weather resistant (Stainless Steel and Valox®)
Vibration	20g (MIL STD 202, Method 204, Condition C)
Shock	200g (MIL STD 202, Method 213B, Condition C)
Weight	65 gms

Individual Specifications

Voltage Output units	
Output	3 Wire, see ordering chart
Current Consumption	8 mA
Min. Loop Resistance	5000 ohms
Current Output units	
Output	4-20 mA (2 wire)
Max. Loop Resistance	(Vs-9) x 50 ohms

Applications

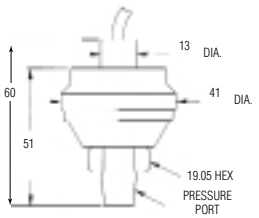
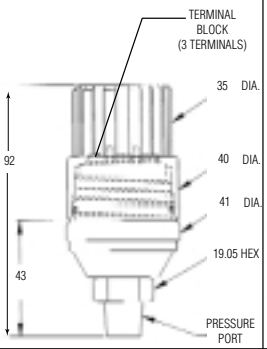
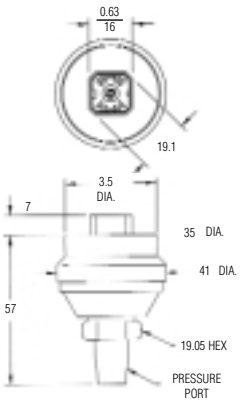
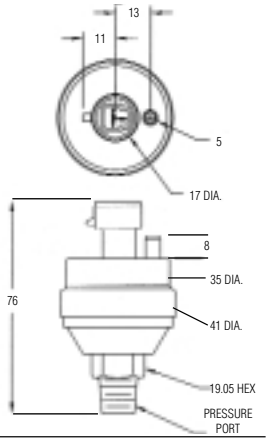
- Hydraulic Systems
- Compressor Control
- HVAC/R Equipment
- Industrial Engines
- Process and Containerized Refrigeration Systems
- Industrial OEM Equipment

How They Operate

209 Series transducers utilise a proven centre mount electrode configuration combined with a durable 17-4 PH stainless steel pressure sensing element to form a variable capacitor. As pressure (or vacuum) increases or decreases, the capacitance changes. Self-contained high-level output IC-circuitry converts the change in capacitance to a fully conditioned linear voltage or current out put signal.

Connector	**Current units (4-20mA)**				**Voltage units**				
		+Ve	-Ve	Earth	+Ve in	Common	+Ve out	-V out	Earth
Cable		Red	Black	Shield	Red	Black	Green	White	Shield
Hirschmann	PIN	1	2		1	2	3		
3 Pin Packard	PIN	B	A		B	A	C		
4 Pin Packard	PIN	A	B		A	B	C		
Conduit	Terminal	+Ve	-Ve		Exc	Common	Out		GND

Dimensions (in mm)

Electrical Termination Style	Cable Anchor	1/2" Conduit/Terminal Block	Hirschmann Connector	3-Pin Packard Connector
				
Terminal Specifications	Standard: 2ft. multiconductor cable. Longer lengths options. See ordering chart.	1/2" conduit connection with 3-screw terminal block. (T1 version is same without conduit connection.)	Mating connector is Hirschmann G4WIF. May be ordered separately from Gems - Option 590.	Mating connector is comprised of Packard P/Ns 12065287 and 12103881. May be ordered separately from Gems - Option 854.
Ordering Code	**02** (cable length in feet)	**A1** Conduit / **T1** - Terminal Block	**H2**	**P1** (3-Pin)

How to Order

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

2091 001P G 2M 11 02 XXX

Series
2091

Pressure Range Code

Pressures - psi

Code	Range	Proof	Burst	Code	Range	Proof	Burst
Z01	0 to -14.7	10	15	**150P**	0 to 150	300	1000
001P	0 to 1	2	250	**200P***	0 to 200	400	2000
002P	0 to 2	4	250	**250P***	0 to 250	500	2000
005P*	0 to 5	10	250	**500P***	0 to 500	1000	3000
010P*	0 to 10	20	500	**600P**	0 to 600	1200	3000
015P	0 to 15	30	500	**10CP***	0 to 1000	2000	5000
025P*	0 to 25	50	500	**20CP**	0 to 2000	3000	6500
030P	0 to 30	50	500	**30CP**	0 to 3000	4500	7500
050P*	0 to 50	100	750	**50CP**	0 to 5000	7500	10000
100P*	0 to 100	200	1000	**10KP**	0 to 10000	12500	20000

Datum
- **G -** Gauge
- **C -** Compound (030PC = -14.7 to 30 psi)
- **S -** Sealed (available in 200 psi ranges and above)
- **V -** Vacuum (Z01 range code only)

Pressure Port
- **2M -** 1/4" NPY Male*
- **J7 -** 7/16" SAE Male (J1926-2)
- **1M -** 1/8" NPT Male
- **G4 -** G1/2" A Male

Output
- **11 -** 4-20 mA*
- **24 -** 0.5-5.5 Vdc*
- **28 -** 1-6Vdc
- **45 -** 0.4-4.5 VDC (5 Vdc supply voltage)

Electrical Termination
- **02 -** Cable length in feet*
- **P1 -** Packard (3-Pin)
- **H2 -** Hirschmann ("Mini")
- **T1 -** Terminal Block
- **A1 -** 7/8" Hole for 1/2" Conduit*

Options
- **590 -** Hirschmann Mating Connector (for H2 Termination)
- **854 -** Packard Mating Connector (for P1 Termination)

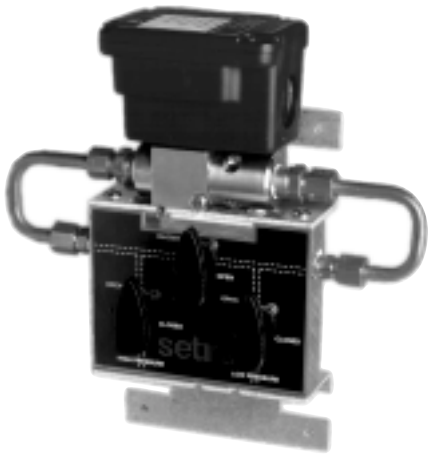
* Indicates standard configuration. Minimum 25 pieces apply for all other configurations.

Indicators and Accessories Pages 62-67

230 Series - Wet/Wet Differential Pressure Transducer

- Liquid media on both ports
- Bleed screws for accurate results
- Optional manifold for easy installation

The 230 Series is designed for wet-to-wet differential pressure measurements of liquids or gases. They feature fast-response capacitance sensors that respond approximately 20x faster than conventional fluid-filled transducers! Sensors are coupled to signal conditioned electronic circuitry for highly accurate, linear analogue output proportional to pressure. Both unidirectional and bidirectional models are available for line pressures up to 250 psi. These units feature bleed ports that allow for total elimination of air in the line and pressure cavities.



Gems optional 3-valve manifold assembly eases installation and maintenance

Common Specifications

Input	
Pressure Range	1 to 100 psid
Proof Pressure	see ordering chart
Burst Pressure	see ordering chart
Common Line Pressure	<250 psia
Fatigue Life	>1 Million Cycles
Performance	
Supply Voltage (Vs)	9-30 Vdc (13-30 Vdc for 10 Vdc output)
Long Term Drift	0.5% FS/year
Accuracy	0.25% FS
Thermal Error Zero	.02% FS/°F (.036% FS/°C)
Thermal Error Span	.02% FS/°F (.036% FS/°C)
Compensated Temperatures	-1°C to +65°C (30° to 150°F)
Operating Temperatures	-18°C to +80°C (0° to 175°F)
Storage Temperatures	-54°C to +121°C (-65° to +250°F)
Zero Tolerance	.5% FS
Span Tolerance	.5% FS
Mechanical Configuration	
Pressure Port	see ordering chart
Wetted Parts	17-4 PH Stainless Steel, 300 Series SS, Viton and Silicone
Electrical Connection	7/8˝ Knock Out for 1/2˝ Conduit, Screw Terminal Strip
Enclosure	Stainless Steel, Aluminum
Vibration	5g Peak Sinusoidal, 5 to 500 Hz
Acceleration	10g
Shock	50g
Approvals	CE
Weight	450gms

Individual Specifications

Voltage Output Units	
Output	0-5 Vdc or 0-10 Vdc (3 wire)
Min. Load Resistance	5000K ohms
Current Output Units	
Output	4-20 mA (2 wire)
Max. Loop Resistance	(Vs-9) x 50 ohms

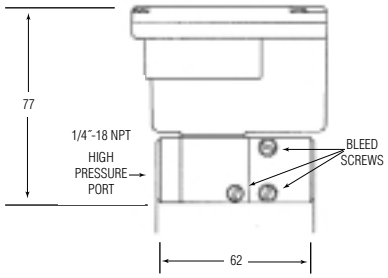
Applications

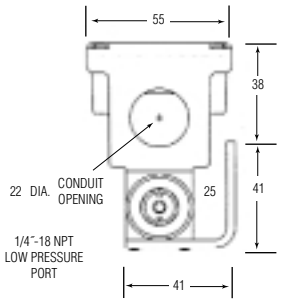
- Energy Management Systems
- Process Control Systems
- Liquid & Gas Flow Measurement
- Filter Monitoring
- Liquid Level Measurement

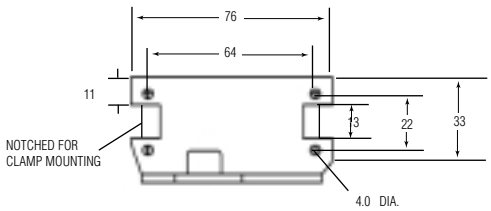
How They Operate

A unique isolation system transmits the motion of the differential pressure sensing diaphragm from the high line pressure environment to the dry enclosure where it moves one of a pair of capacitance plates proportionally to the diaphragm movement. Electronic circuitry linearises output vs. pressure and compensates for thermal effects of the sensor.

Dimensions (in mm)



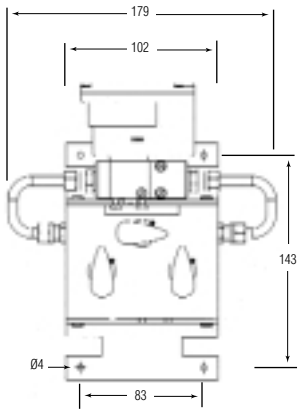




3-Valve Manifold

Gems optional 3-valve manifold assembly eases installation and maintenance. Machined of Brass, it eliminates internal pipe connections and the associated chance of internal leaks. When manifold and 830 Series transducer are ordered together, they are assembled at the factory and shipped ready for mounting. Specify the **3V** Pressure Port code when ordering.

Wetted Parts	360 Brass, Copper 122, Acetal plug valves, and Nitrile O-rings
Valve Type	90-degree on/off
Process Connections	1/4˝ NPTF
Dimensions	7.05˝ x 6.25˝ x 2.16˝ D
Weight	2.5 lbs



How to Order

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

SELECT **2301** **025PD** **2F** **11** **B** **X**

Series
2301 - 830 Series

Pressure Range Code

	Proof Pressure - psi		
Unidirectional psid Ranges	High Side	Low Side	Burst
001PD-0-1	20	2.5	200
002PD-0-2	40	5.0	200
005PD-0-5	100	12.5	600
010PD-0-10	100	52.5	1000
025PD-0-25	250	62.5	1000
030PD-0-30	250	62.5	1000
050PD-0-50	250	125.0	1000
100PD-0-100	250	250.0	1000

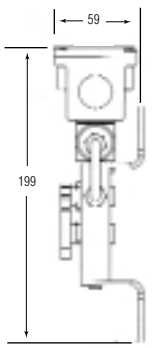
	Proof Pressure - psi		
Bidirectional psid Ranges	High Side	Low Side	Burst
0R5PB-±0.5	20	1.25	200
001PB-±1	40	2.50	200
2R5PB-±2.5	100	6.25	600
005PB-±5	100	12.50	1000
010PB-±10	200	25.00	1000
025PB-±25	250	62.50	1000
050PB-±50	250	125.00	1000

Pressure Port
2F - 1/4" NPTF
3V - 3-Valve Manifold Assembly Installed

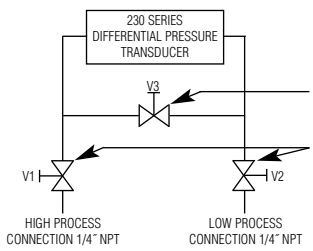
Output
11 - 4-20 mA
2D - 0-5 Vdc
2E - 0-10 Vdc

Bleed Screw Seals
B - Viton/Silicon Standard
A - Buna-N Optional

Optional
C - Calibration Certificate



Valve Schematic



Indicators and Accessories
Pages 62-67

265 Series - Low Differential Pressure Transducers

- For Air or Non-Conductive Gas
- 0.25 to 100 Inches in W.C.(differential)/±0.1 to ±50 Inches in W.C. (bi-directional)
- High Proof Pressure

The 265 Series are low-pressure transducers for ranges as low 0.25˝ W.C. and feature ±1% full scale static accuracy. Primarily used in Building Energy Management, these transducers are capable of measuring pressures and flows with the accuracy necessary for proper building pressurisation and air flow control. 265 Series transducers utilise an all-stainless steel micro-tig welded sensor that allows up to 10 psi overpressure (in either direction) with no damage to the unit. All sensor components have thermally matched coefficients, which promote improved temperature performance and excellent long-term stability.

Specifications

Input	
Pressure Range	See ordering chart
Proof Pressure	700mbar
Fatigue Life	7 million cycles
Performance	
Supply Voltage (Vs)	9-30 Vdc
Accuracy	±1.0% FS (Standard); .4% & .25% versions available
Thermal Error Zero	±0.06% FS/°C (±0.033% FS/°F)
Thermal Error Span	±0.06% FS/°C (±0.033% FS/°F)
Compensated Temperatures	-18°C to +65°C (0° to +150°F)
Operating Temperatures	-18°C to +65°C (0° to +150°F)
Storage Temperatures	-40°C to +85°C (-40° to +185°F)
Zero Tolerance	1% (.5% for high accuracy option)
Span Tolerance	1% (.5% for high accuracy option)
Mechanical Configuration	
Pressure Port	1/4" Fitting
Wetted Parts	Stainless Steel and Glass-Filled Polyester
Electrical Connection	Screw Terminal Strip
Enclosure	Fire Retardant Glass-Filled Polyester; Option A1 Conduit Enclosure Available
Approvals	CE
Weight	85 gms

Individual Specifications

Voltage Output Units	
Output	0-5 Vdc or 0-10 Vdc (3 wire) (see ordering chart)
Min. Load Resistance	5000 kohms
Current Output Units	
Output	4-20 mA (2 wire)
Max. Loop Resistance	(Vs-9) x 50 ohms

Applications

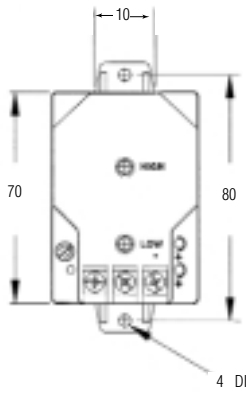
- HVAC
- Energy Management Systems
- Variable Air Volume and Fan Control (VAV)
- Environmental Pollution Control
- Static Duct and Clean Room Pressures
- Oven Pressurization and Furnace Draft Controls

How They Operate

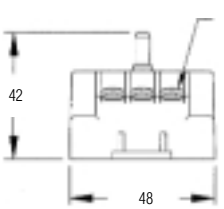
A tensioned stainless steel diaphragm and insulated stainless steel electrode, positioned close to the diaphragm, form a variable capacitor. Positive pressure moves the diaphragm toward the electrode, increasing the capacitance. A decrease in pressure moves the diaphragm away from the electrode, decreasing the capacitance. The change in capacitance is detected and converted to a linear DC electrical signal by Gems' unique electronic circuitry.

Dimensions (in mm)

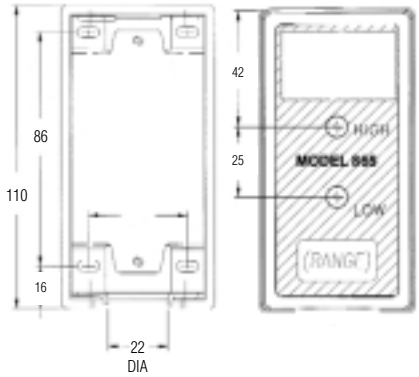
Standard 265 Series



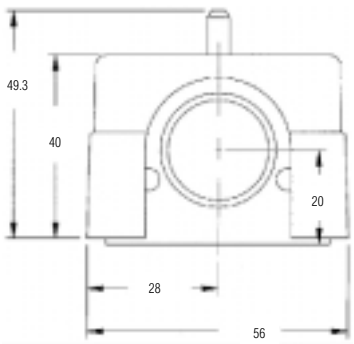
MOUNTING HOLE
2 PLACES



Optional Conduit Enclosure - Code A1



FOR CONDUIT
FITTING



How to Order

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

SELECT **2651** **OR5WD** **2B** **T1** **C**

Series
2651 - 265 Series

Pressure Range Code

Unidirectional		Bidirectional	
Code	Range (Inches W.C.)	Code	Range (Inches W.C.)
R25WD	0 to 0.25	**OR1WB**	±0.1
OR5WD	0 to 0.5	**R25WB**	±0.25
001WD	0 to 1.0	**OR5WB**	±0.5
2R5WD	0 to 2.5	**001WB**	±1.0
005WD	0 to 5.0	**2R5WB**	±2.5
010WD	0 to 10.0	**005WB**	±5.0
025WD	0 to 25.0	**010WB**	±10.0
050WD	0 to 50.0	**025WB**	±25.0
100WD	0 to 100.0	**050WB**	±50.0

Output
11 - 4-20 mA (9-30 Vdc excitation)
2B - 0-5 Vdc (9-30 Vdc excitation)

Accuracy
C - ±1%FS (Standard)
Option (with Calibration Certificate)
E - ±0.4% FS
F - ±0.25% FS
G - ±1% FS

Electrical Connection
T1 - Terminal Strip
A1 - Supplied with Optional 7/8" Knock-Out Hole for 1/2" Conduit Enclosure

Indicators and Accessories Pages 62-67

267 Series - Very Low Differential Pressure Transducers

- Multi-range capability
- 0.1 to 100" WG (differential ±0.05 to ±50" WG)
- 31/2 digit display

The models 267 and 267MR are very low range transmitters for ranges as low as 0.1" WC with high overload capability of up to 700mb in either direction without damage. Both units offer a field configurable high level voltage or 4-20mA current output with the 267 offering the options of a 31/2 digit LCD display and static probe making it ideal for Building Energy Management Systems with quick and easy installation directly on a duct, as well as a multi-range capability of six selectable ranges via D.I.P. switches.

The 267MR has D.I.P. switches which gives a multi range capability allowing up to six selectable ranges.

Specifications

Input	
Pressure Range	See ordering chart
Proof Pressure	700mbar
Fatigue Life	7 million cycles
Performance	
Supply Voltage (Vs)	9-30 Vdc (9-30 Vdc optional on Vdc outputs)
Accuracy	±1.0% FS (Standard); .4% & .25% versions available
Thermal Error Zero	±0.06% FS/°C (±0.033% FS/°F)
Thermal Error Span	±0.06% FS/°C (±0.033% FS/°F)
Compensated Temperatures	5°C to 65°C (40° to 150°F)
Operating Temperatures	-18°C to +65°C (0° to +150°F)
Storage Temperatures	-40°C to +85°C (-40° to +185°F)
Zero Tolerance	1% (.5% for high accuracy option)
Span Tolerance	1% (.5% for high accuracy option)
Mechanical Configuration	
Pressure Port	1/4" Fitting
Wetted Parts	Stainless Steel and Glass-Filled Polyester
Electrical Connection	Screw Terminal Strip
Enclosure	Fire Retardant Glass-Filled Polyester; Option A1 Conduit Enclosure Available
Approvals	CE
Weight	255 gms

Individual Specifications

Voltage Output Units	
Output	0-5 Vdc or 0-10 Vdc (3 wire) (see ordering chart)
Min. Load Resistance	5000 kohms
Current Output Units	
Output	4-20 mA (2 wire)
Max. Loop Resistance	(Vs-9) x 50 ohms

Applications

- HVAC
- Energy Management Systems
- Variable Air Volume and Fan Control (VAV)
- Static Duct Pressure
- Clean Room Pressures
- Oven Pressurisation and Furnace Draft Controls

How They Operate

A tensioned stainless steel diaphragm and insulated stainless steel electrode, positioned close to the diaphragm, form a variable capacitor. Positive pressure moves the diaphragm toward the electrode, increasing the capacitance. A decrease in pressure moves the diaphragm away from the electrode, decreasing the capacitance. The change in capacitance is detected and converted to a linear DC electrical signal by unique electronic circuitry.

Indicators and Accessories Pages 62-67

How to Order

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

SELECT: **2671** **0R1** **W** **D** **11** **G1** **C** **D**

Series
2671 - 267 Series

Pressure Range Code

Code	Range (inches W.C.)		Code	Pascals	
0R1	0 to 0.1	±0.1	**025**	0 to 25	±25
R25	0 to 0.25	±0.25	**050**	0 to 50	±50
0R5	0 to 0.5	±0.5	**100**	0 to 100	±100
001	0 to 1	±1	**250**	0 to 250	±250
2R5	0 to 2.5	±2.5	**500**	0 to 500	±500
005	0 to 5	±5	**10C**	0 to 1000	±1000
010	0 to 10	±10	**25C**	0 to 2500	±2500
025	0 to 25	±25	**40C**	0 to 4000	
050	0 to 50	±50	**70C**	0 to 7000	
100	0 to 100				

Units
W - in W.C.
L - Pascal

Type
Differential
D - Unidirectional
B - Bidirectional

Output
11 - 4-20mA
2D - 0-5 Vdc
2E - 0-10 Vdc

Display
D - LCD Display (see note 1)
N - No Display

Accuracy
C - ±1.0%FS
Optional (w/Cal.Cert.)
E - ±0.4%FS
F - ±0.25%FS
G - ±1%FS
H - ±0.5%FS

Pressure Fitting/Electrical Termination
(Choose the proper electrical termination code under the pressure fitting ordered)

1/4" NPT F, Brass Optional Fitting
1K - PG-9 Strain Relief
2K - PG-13.5 Strain Relief
9K - 9 pin D-sub Connector
AK - 1/2" Conduit Opening

3/16" Barbed Brass Standard Fitting
G1 - PG-13.5 Strain Relief
G2 - PG-9 Strain Relief
D9 - 9 pin D-sub Connector
A1 - 1/2" Conduit Opening

Static Duct Probe Optional Fitting
1P - PG-9 Strain Relief
2P - PG-13.5 Strain Relief
9P - 9 pin D-sub Connector
AP - 1/2" Conduit Opening

Note 1. ±0.5%FS (Code H) accuracy is standard when ordered with the LCD display (Code: D).

SELECT: **2671** **0R1** **W** **D** **11** **G1** **C** **D**

Series
2671 - 267 Multi Range Series

Pressure Range Code

Code	Range (inches W.C.)		Code	Pascals	
MR1	0 to 0.1	±0.05	**MR5**	0 to 25	±12.5
MR2	0 to 0.25	±0.125	**MR6**	0 to 50	±25
	0 to 0.5	±0.25		0 to 100	±50
	0 to 1	±0.5		0 to 200	±100
MR3	0 to 1.25	±0.625	**MR7**	0 to 250	±125
	0 to 2.5	±1.25		0 to 500	±250
	0 to 5.0	±2.5		0 to 1000	±500
MR4	0 to 7.5	±3.75	**MR8**	0 to 625	±312
	0 to 15	±7.5		0 to 1250	±625
	0 to 30	±15		0 to 2500	±1250
			MR9	0 to 1875	±937
				0 to 3750	±1875
				0 to 7500	±3750

Units
W - in W.C.
L - Pascal

Type
Differential

Output
11 - 4-20mA
2D - 0-5 Vdc
2E - 0-10 Vdc

Display
N - No Display

Accuracy
C - ±1.0%FS
Optional (w/Cal.Cert.)
G - ±1.0%FS

Pressure Fitting/Electrical Termination
(Choose the proper electrical termination code under the pressure fitting ordered)

1/4" NPT F, Brass Optional Fitting
1K - PG-9 Strain Relief
2K - PG-13.5 Strain Relief
9K - 9 pin D-sub Connector
AK - 1/2" Conduit Opening

3/16" Barbed Brass Standard Fitting
G1 - PG-13.5 Strain Relief
G2 - PG-9 Strain Relief
D9 - 9 pin D-sub Connector
A1 - 1/2" Conduit Opening

Static Duct Probe Optional Fitting
1P - PG-9 Strain Relief
2P - PG-13.5 Strain Relief
9P - 9 pin D-sub Connector
AP - 1/2" Conduit Opening

290 Series - 3A Sanitary Pressure Transducer

- For Clean-In-Place (CIP) and Sterilise-In-Place (SIP)
- 0.20% full scale accuracy
- No liquid fill diaphragms

The 290 Series meets 3A sanitary design standards and is fully sealed to withstand external high pressure washdowns. These units are packaged in rugged welded stainless steel housings and are exceptionally insensitive to vibration, shock and environmental extremes. A small size and tri-clover sanitary pressure fitting allow direct mounting in most CIP and SIP installations. Other features include IC-based circuitry, a 1/2" NPT conduit fitting and shielded cable with vent tube. Sealed screws provide access to zero and span adjustments.

CE

Specifications

Input	
Pressure Range	1 to 1000 psig
Proof Pressure	See ordering chart
Burst Pressure	See ordering chart
Fatigue Life	>1 million cycles
Performance	
Output	4-20 mA (2 Wire)
Supply Voltage (Vs)	18-38 Vdc
Accuracy	0.20% FS
Thermal Error Zero	.036%FS/°C (.02% FS/°F)
Thermal Error Span	.036%FS/°C (.02% FS/°F)
Compensated Temperatures	-7°C to +80°C (20° to 180°F)
Operating Temperatures	-40°C to +125°C (-40° to +260°F)
Storage Temperatures	-54°C to +127°C (-65° to +260°F)
Zero Tolerance	1% FS (±0.5 mA adjustable)
Span Tolerance	1% FS (±0.5 mA adjustable)
Maximum Loop Resistance	(Vs-18) x 50
Response Time	10 ms
Mounting Effects	.15% FS (.25% FS for 1.5" Tri-Clover)
Mechanical Configuration	
Pressure Port	1.5" or 2" Tri-Clover Sanitary Fitting
Wetted Parts	316 Stainless Steel, 20 Rc finish
Electrical Connection	1/2" NPT Conduit Fitting and Strain Relief with 15 ft. Cable
Enclosure Stainless	Steel
Vibration	10g Peak Sinusoidal, 50 to 1000 Hz
Acceleration	10g
Shock	50g
Approvals	Meets 3-A Sanitary Standards
Weight	230 gms

Applications

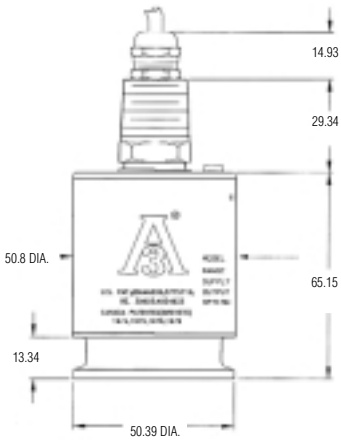
- Food Processing
- Dairy & Beverage Processing
- Pharmaceutical Processing
- Sanitary Pipelines

How They Operate

A stainless steel diaphragm and an insulated electrode form a variable capacitor. Pressure on the diaphragm alters the sensor's capacitance, which is then detected and converted to a highly accurate linear 4-20 mA signal by electronic circuitry featuring Gems' patented charge-balance principle. Low hysteresis, very stable operation and negligible clamping effect are inherent.

Dimensions (in mm)

1.5" Fitting



2" Fitting

Gems adheres to strict quality standards including MIL-1-45208A and ANSI-2540-1.
MODEL

How to Order

Order as 290 Series Sanitary Pressure Transmitters. Specify Pressure Range (tablulated below), Fitting Size and any Options. Use bold characters to construct a product code.

SELECT **C290** **10** **100mb 2 IN** **715** **822**

1. Series
C290 - 290 Series

2. Pressure Ranges

2" Tri-Clover Sanitary Fittings	
C290	
PSI	**Millibar**
1 psig	100mbar
2 psig	160mbar
5 psig	400mbar
10 psig	600mbar
15 psig	1000mbar
30 psig	
60 psig	
100 psig	
150 psig	
-14.7 to 15 psig	

1.5" Tri-Clover Sanitary Fittings
C290
PSI
30 psig
60 psig
100 psig
300 psig
500 psig
1000 psig
-14.7 to 15 psig
-14.7 to 45 psig

3. Pressure Port
1.5IN - 1.5" Tri-Clover Sanitary Fitting
2IN - 2" Tri-Clover Sanitary Fitting

4. Optional
715 - ±0.1% FS (RSS) accuracy

5. Cable Length
816-825 - For cable lengths of 16 to 25 feet (15 ft. is standard).
Please specify cable length by code (e.g., 820 for 20 ft. cable).
Consult factory for cable longer than 25 feet.

Indicators and Accessories Pages 62-67

OEM Pressure Capsules

- Small Profile
- 'O' Ring flush mount or threaded port
- Stable piezoresistive sensors
- 316L wetted parts

Gems Sensors offer a range of micro machined piezoresistive silicon pressure sensors designed specifically for volume OEM applications where compatibility with corrosive media is essential, the sensor is mounted in a 316L stainless steel package with a small volume of oil between the diaphragm and sensor. The pressure housing uses the oil to transmit the pressure from the diaphragm to the sensor.

A ceramic compensation board with laser trimmed resistors provides temperature compensation and an additional gain resistor can be utilised for rationalisation or an ASIC to provide 0.5 to 4.5V ratiometric output.

A range of threaded pressure ports are offered in addition to the 'O' ring mount alternative diaphragm materials and voltage excitation units are available.

Specifications

	563165	563170	563175	563180
Pressure Range	0 to 5 to 0 to 500 PSI G & A	0 to 5 to 0 to 500 PSI G & A	0 to 100 to 5000 0 to 5000 PSI G & A	0 to 1 to 0 to 150 PSI G
Proof Pressure	3 x	3X	3X	3X
Zero	±1mV	±1mV	±1mV	0.5V
Output	100mV (+50 -25)	100mV (+50 -25)	100mV (+50 -25)	4.5V
Supply	0 .5 to 2mA	0.5 to 2mA	0.5 to 2mA	5V ± 025
Accuracy	±0.1%	±0.1%	±0.25%	±0.25%
Thermal Error	±1%	±1%	±1%	±3%
Compensated Temperature	-20 to +85°C	-20 to +85°C	-20 to +85°C	0 to +40°C
Operable Temperature	-40 to +125°C	-40 to 125°C	-40 to 125°C	-20 to 85°C
Wetted Parts	316L	316L	316L	316L
Mounting	External Thread	'O' Ring Seal	External Thread	'O' Ring Seal

How To Order

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

563165 G G50 01

Datum
G - Gauge
A - Absolute

Pressure Range
F15 - 15psi
F30 - 30psi
F50 - 50psi
G10 - 100psi
G30 - 300psi
G50 - 500psi

Pressure Port
01 - G1/4 Ext
02 - 1/4 - 18 NPT Ext
04 - 7/16 - 20 UNF
08 - 1/8 - 27 NPT Ext

563170 G G50

Datum
G - Gauge
A - Absolute

Pressure Range
F15 - 15psi
F30 - 30psi
F50 - 50psi
G10 - 100psi
G30 - 300psi
G50 - 500psi

563175 G H50 01

Datum
G - Gauge
A - Absolute

Pressure Range
H10 - 1000psi
H30 - 3000psi
H50 - 5000psi

Pressure Port
01 - G1/4 Ext
02 - 1/4 - 18 NPT Ext
04 - 7/16 - 20 UNF
08 - 1/8 - 27 NPT Ext

563180 G F50

Datum
G - Gauge
A - Absolute

Pressure Range
F01 - 1psi
F02 - 2psi
F05 - 5psi
F15 - 15psi
F30 - 30psi
F50 - 50psi
G10 - 100psi

Indicators and Accessories Pages 62-67

GBD Series - Heavy Duty Differential Industrial Pressure Transmitter Individual Specifications

- Suitable for Liquid, Gas and Vapour Media
- High Static Line Pressure
- 4:1 Span Turndown Capability

The GBD series incorporates an LVDT sensor in a robust differential pressure enclosure, which is ideal for industrial process applications. An isolated stainless steel diaphragm uses one of two fluid fills available to transfer its movement to the LVDT sensor. A choice of silicone or flurolube fluid fills are available. These transmitters' turndown capabilities coupled with their rugged design make them very well suited for harsh and demanding applications.

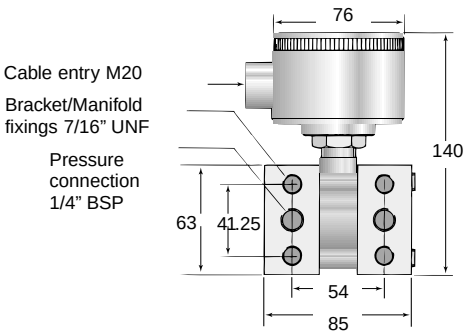
CE

Specifications

Input	
Pressure Range	40 mbar to 6 bar (0.6-87psi)
Proof Pressure*	35 bar for 40mbar range
	50 bar for 160 mbar range
	100 bar all other ranges
Static Pressure	100 bar (1500 psi)
Performance	
Output	4-20-mA (2 wire)
Supply Voltage (Vs)	8 to 30 Vdc (8-38 Vdc for IS units)
Supply Voltage Sensitivity	0.01% of max span/Volt
Zero Stability	0.2% of max span per year non cumulative
Accuracy	0.2% of max span (typical)
Thermal Error	1.5% of max span (typical)
Compensated Temperatures	-20° to 100° C (-4° to 212° F) process
Operating Temperatures	-20° to 100° C (14° to 158° F) ambient
	-10° to 70° C (14° to 158° F) ambient
Response Time	0.1 seconds
Span Adjustment	25% to 100% of max span
Max Loop Resistance	(Vs-8) to 50 ohms
Mechanical Configuration	
Pressure Port	Two G1/4 internal
Wetted Parts	Diaphragm 17-7PH SS (optional 316 ss)
	Flanges carbon steel or 316SS
	O-ring Nitrile or Viton
Electrical Connection	M20 x 1.5mm, screw terminals
Enclosure	IP65 (Nema 4) Aluminium alloy with anodized finish or stainless steel, rotates 360°
Approvals	CE
Weight	4kg

* These pressures do not cause a zero shift greater than 5% of the max span.

Dimensions (in mm)



How to Order

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

GBD D O T HS 860 A E N /options

Series
GBD

Agency Approvals
D Non certified, supply 8-30 Vdc
S IS certified IIC T6, supply 8-28 Vdc

Transmitter Head
T Aluminium alloy head; **H** Stainless Steel head

Oil Fill **HS** Silicone Oil; **HF** Fluorolube Oil

Pressure Range

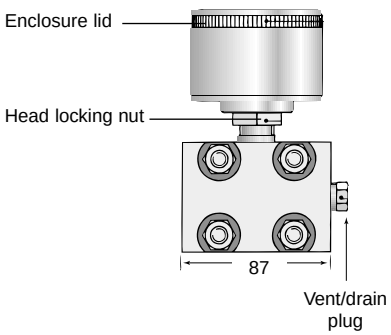
840 0-40 mb	(0-16"wg)	**870** 0-1 bar	(0-14,5 psi)
851 0-160 mb	(0-2.3 psi)	**872** 0-2.4 bar	(0-35 psi)
860 0-400 mb	(0-5.8 psi)	**881** 0-6 bar	(0-87 psi)

Flange Material **A** Carbon Steel; **B** 316SS

Diaphragm Material
E Heat treated 15-7 Mo or 17-7PH ss; **B** 316ss (optional)

O-Ring Material **N** Nitrile; **V** Viton

Options **/WDP** Fixed wall bracket; **/PDP** 2" pipe clamp



Indicators and Accessories Pages 62-67

DM28 - Economical Digital Process and Strain Gauge Panel Meters

- Easily scaled in any engineering units from -19999 to 99999
- Large 18 mm (.71") high red orgreen display
- Front panel MIN, MAX and alarm reset functions
- High or low alarms
- Process meters for amplified transducers
- Strain gauge meters for millivolt transducers

The DM28 meter line is easily programmed to read out in any engineering units (psi, bar, Kg/cm2) and can be retro fitted in the field with plug in boards. Units can be scaled by applying known loads to the sensors or purely by software keystrokes without requiring any electronic instrumentation. Scaling the meter using up to 10 points can compensate for non-linear signals and profiling curved tanks in level applications. The display colour (red or green), latching or non-latching alarms and the optional analog outputs are all programmable. The meter also features a help character that indicates max, min and normal operation, it also gives additional help when programming. The DM28 meter line is available in 5 different models, the specifications below are for the process and strain gauge meter lines only.

Specifications

Accuracy	.01% Process, .03% Strain
Resolution	14 bits
Display	5 digits, red or green LED
Display Height	18 mm (.71")
Operating Temp.	0 to 55 C (32 to 130 F)
Relative Humidity	20% to 95% non-condensing
Span Temp. Coefficient	25 ppm/C
Storage Temp	-20° to 80° C (-4° to 176° F)
Approvals	CE
Display Filter	100 ms to 100 seconds programmable
Output #1	5 Amp @ 120 Vac SPDT & NPN collector 30 Vdc @ 100 mA max.
Output #2	NPN collector (SPDT relay optional)
Remote Features	Optional Tare or Security lockout
Analog Output	Scalable 4-20 mA or 0-10 V (8 bit)
Meter Supply	90-264 Vac @ 50/60 Hz, 4 Watts (optional 20-50 Vdc/Vac)
Sensor Supply	24 Vdc @ 30 mA process meter
	5 or 10 Vdc @ 60 mA strain meter
Physical	
Front Bezel	96 mm x 48 mm x 10 mm
Depth Behind Panel	100 mm
Panel Cut-out	1/8 DIN 92 mm x 45mm (3.622" x 1.772")
Front Panel Rating	IP65 (Nema 4X)
Terminals	Screw type
Weight	250 g (.56 lbs)

CE

How To Order

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

DM28 2 0 0 0 0

Series
DM28

Meter Input (*for additional information contact sales)
2 DC Process Meter input: 4-20mA, 0-20mA, 10-50mA (24 Vdc excitation) 0-5V, 1-5V, 0-10V, 2-10V
6 Strain Meter input: 100mV (5 or 10 Vdc excitation)
1* Temperature input: Thermocouples J, T, K, B, S, R, N & RTD 3 & 4 wire
3* AC Volts/Amps input: 1V, 10V, 100V, 600V, 1mA, 10mA, 100mA, 1A
5* DC Volts/Amps input: 100mV, 1V, 10V, 100V, 600V, 1mA, 10mA, 100mA, 1A, 2A

Relay Output
0 One SPDT, one NPN
1 Two SPDT

Analog Output
0 Standard none
3 Programmable analog output

External Digital Input
0 Standard none
6 Digital input for tare or security lockout

Meter Power Supply
0 Standard 90-264 Vac
2 20-50 Vac or Vdc

DM430 - In Line DIN Indicator

- Direct mounting on pressure transmitters
- Push button programmable
- No additional wiring

The DM430 plug in display unit is a universal local display suitable for use with Gems Sensors two wire pressure transmitters with a DIN 43650 (large DIN) electrical connection.

The display is powered by the existing 2 wire loop so no additional power supply is necessary.

Fully programmable the DM430 has a measuring range of -1999 to +9999 and can be easily set to display in Engineering unit's, %, current, etc, by means of 2 push buttons, accessible on the front panel the unit can be password protected.

The programmed parameters are stored in an EEPROM so they are not lost after power failure, with over or under range displays on the indicator in text format.

CE

Specifications

Display	Four segment red LED display. Digit height 7mm Programmable decimal point setting
Measuring range	-1999 to +1999
Accuracy	0.1% of span ± 1 digit
Electrical connection	To transmitters with 4-20 mA output and right angle plug DIN 43650 (4 pin) polarised.
Allowed current load	Max 60 mA
Voltage drop	≤6V
Data back-up	Non-voltaic EEPROM
Programming	With two keys, menu-assisted, scaling of scale range, decimal point, damping, error message, switch point (optional).
Case Material	Polycarbonate PA 6.6
Protection type	IP65
Temperature error	.01%/°C
Ambient temperature	-20 to 80°C
Storage temperature	-40 to 80°C
Dimensions	W 68mm, H 47mm
Weight	Approx 100gms

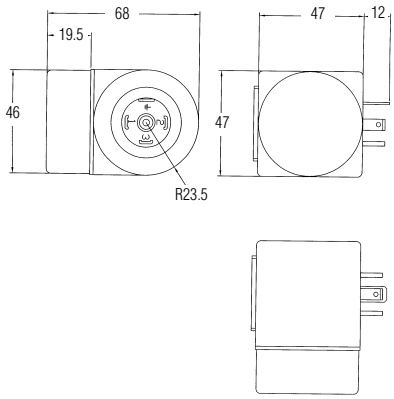
Order Code

DM430

DM430 R G

Switch Output
0 - No switch
R - 1 switch output pnp max current 120mA

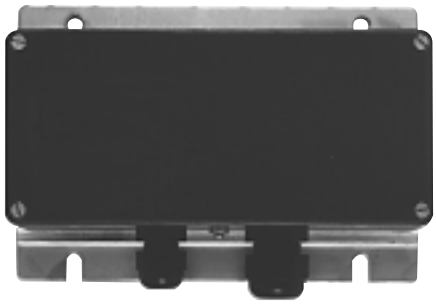
Electrical Connector (out)
G - Large DIN 43650
L - MI2 x 1 (5 pin)



1025 Remote signal conditioning Process Transmitter

- For use with all Gems mV transducers
- Operates from supply voltages of 9-48V
- 5:1 Turn down
- Easy customer adjustment of 4-20mA output
- 0.25 second damping for improved static measurements

The CE marked BHL-1025-20 is a competitively priced signal conditioning process transmitter for the remote operation of any Gems pressure transducers. Integral electronic damping reduces output variations caused by fast fluctuating pressures, such as in some liquid level measurements. If not required this may be removed, just specify at time of order. Fully adjustable zero and span controls can vary the output signal or extend the standard pressure range of transducer being used. Gain adjustment allows a simple output span change to the measurements required i.e. psi, liquid level in inches, feet or metres, providing rangeability from 20% to 125% of the transducer full range. The BHL-1025-20 is designed for surface mounting from the detachable pre-drilled plate. The emc protection to EN50081-2 and EN50082-2 includes lightning protection against all except direct strikes. Reverse polarity protection is included as standard. The 1025-20 can also be supplied set up with zero offset, provided the measurement range is within specification.



CE

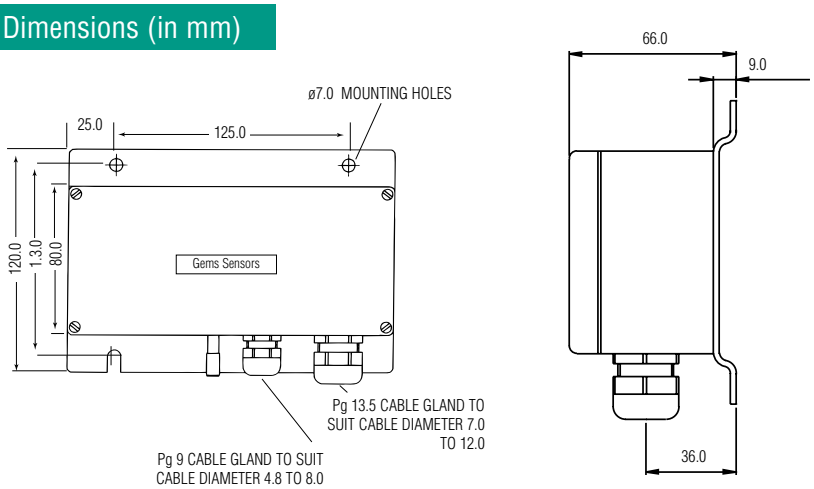
Specifications

Input	All Gems mV transducers
Performance	
Output	4-20 mA (2 wire)
Supply Voltage (Vs)	8 to 48 Vdc
Supply Voltage Sensitivity	0.005% of max span/Volt
Zero Adjustment	+/- 10% of max span customer adjustable
Zero Setting	100% span, factory set
Span Adjustment	Thin film 4000K, 20% to 125% transducer nominal pressure. CVD, 2200, 2600 17% to 100% transducer nominal pressure
Max Loop Resistance	8-48V supply, (Vs-8) x 50Ω
Min Loop Resistance	8 to 40V: 0Ω
	40-48V supply, (Vs-40) x 250Ω
Response Time	Damped to 250 milliseconds
Mechanical Configuration	
Electrical Connection	Cable gland for 5.5mm (0.22") diameter cable (standard immersible)
Enclosure	IP65
Approvals	CE
Operating Temperatures	-25 to 75°C (-13 to 170°F)
Weight	700 gramms.

How To Order

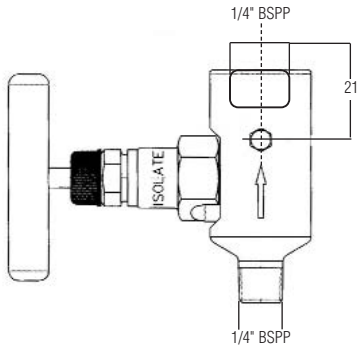
Order Part Number 1025-20

Dimensions (in mm)



Isolating Needle Valve

Part No. 557740

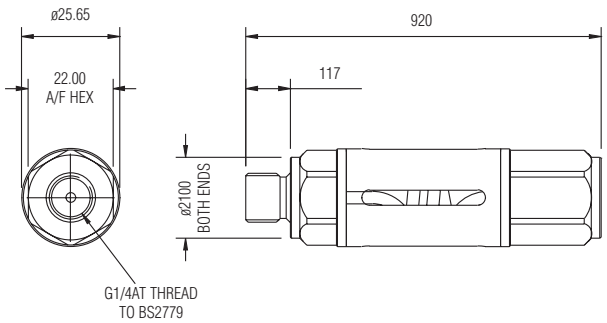


Cable and Cable Assemblies

Part No.	Sheath	Operating Temperature
	Polyurethane	-20 to +50°C
557725	Hytrel	-40 to +100°C
496687	Polyolofit	-54 to 120°C

Temperature Isolator 558564 - 0001

Pigtail, siphon tubes and other forms of temperature isolation are used to reduce media temperature at the transducer. This self-contained 316 SS temperature isolator is packaged in a small housing 92 mm long, and reduces the media temperature at the transducer, to about a fifth (transducer temp = media temp/5 + ambient temp). Max. temp. 400°C, max. pressure 400bar.



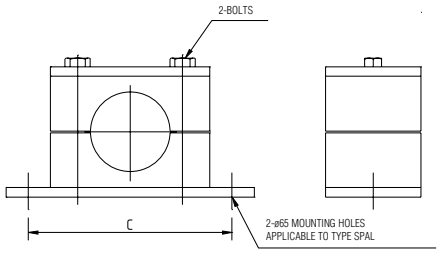
Cable Assembles: MiniMap 1000 Series page 20

557703 - 01M0	12mm x 1 4pin electrical connector with 1metre cable
557703 - 02M0	12mm x 1 4pin electrical connector with 2metre cable
557703 - 03M0	12mm x 1 4pin electrical connector with 3metre cable
557703 - 04M0	12mm x 1 4pin electrical connector with 4metre cable
557703 - 05M0	12mm x 1 4pin electrical connector with 5metre cable

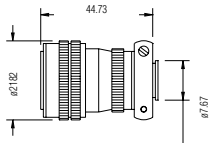
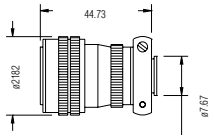
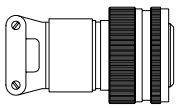
Accessories

Mounting Clamps

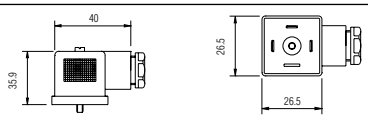
Generally our pressure transducers are supported by the piping they are mounted to, however when thin tubing, vibrations or large transducers are present then a mounting clamp is required. These clamps utilise a plastic-mounting bracket to secure the transducer's outer case and a metal base strip to firmly attach the clamp to a surface.

Polypropylene -30 to 90°C	Polyamide -40 to 120°C	For Pressure Transducers	C	
499877-1000	499877-1001	4000 series (25 mm dia.)	64	
499877-1120	499877-1121	1200, 1600, 2200, 2600, 2800 series (28 mm dia.)	73	
499877-1500	499877-1501	4700, 5000 & 6700 series (38 mm dia.)	86	

Cylindrical Connectors

Part Number	Size	Temperature	For Use With	
166267-0006	10-6 Bayonet	-70 to 195ºC	4000-C	
499532-0006	10-6 Bayonet	-54 to 120ºC	4000-C 5000-C 1600-C 2600-C 2800-C 4700-C 6700-C	
499855-0001* Requires strain relief clamp 499855-0011	10-5 twist	-54 to 230ºC	4000-N	
557702	DIN 72585	-40 to 140ºC	1000-7	Drawing not available
557703-0000	12mm x 1 4pin	-20 to 120ºC	1000-E	Drawing not available
557704-0000	12mm x 1 5pin	-20 to 120ºC	4700-L, 5000-L 6700-L, 9000-L	Drawing not available

Square/Rectangular Connectors

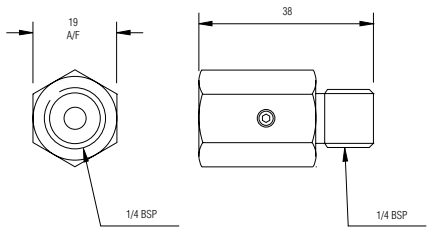
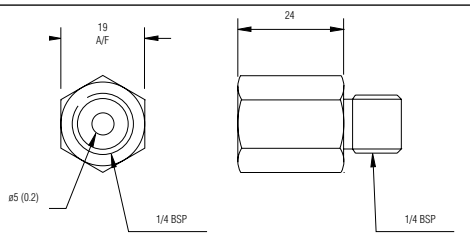
Part Number	Type	Temperature	For Use With	
557254	DIN 43650A	-20 to 120ºC	1600-G, 2600-G, 4700-G 5000-G, 6700-G, 1700-G, 1701-G	
557230	Industrial DIN connector	-20 to 120ºC	1200-A, 2200-A	
557701	Amp Superseal	-40 to 125ºC	1000-6	Drawing not available

Restrictors

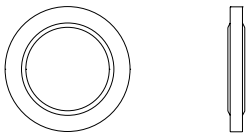
In most applications quasi static pressure measurement is all that is required. Often, transient pressure pulses are present in the system and it is recommended that a rapid acting pressure snubber or a restrictor is fitted to protect the transmitter or transducer. These pulses are often classified as water or pipe hammer.

Pressure snubbers are widely available and generally employ a moving element to isolate the sensor from a pressure pulse. A high volume displacement is usually necessary for satisfactory operation.

Since our pressure sensors require only a low volume displacement to actuate, these snubbers may not provide adequate protection. Our restrictors on the other hand attenuate high frequency pulses and only allow steady state or slow changes to pass through. These thread directly into 4000, 4700 and 6700 series, and also 22/2600 and 2800 with G1/4 threads. Available in stainless steel these are designed for hydraulic applications.

Description	Part Number	
Integral capillary 0.5mm diameter, 13.5mm long plus a bleed screw all in stainless steel	466175-0000	
This restrictor has a helical groove, approximately 0.5mm diameter and 56 mm long. Made in japanned steel.	557002	
As above but in stainless steel	557000-0002	

Industrial Bonded Seals

Description	Part Number	
Sealing for G1/4 thread. Nitrile in zinc plated steel, temperature range -40 to 100 C.	232646-0002	
Sealing for G1/4 thread. Viton in cadmium plated steel, temperature range -26 to 200 C.	499207-0002	
Sealing for G 1/8 thread. Nitrile in zinc plated steel, temperature range -40 to 100 C.	232646-0006	

Ingress Protection (IP) Codes

Example:
IP65 - equipment is dust-tight and protected against water jets

FIRST NUMERAL Protection against solid bodies		SECOND NUMERAL Protection against liquid	
0	NO PROTECTION	0	NO PROTECTION
1	OBJECTS GREATER THAN 50mm	1	VERTICALLY DRIPPING WATER
2	OBJECTS GREATER THAN 12mm	2	ANGLED DRIPPING WATER -75 TO 90°
3	OBJECTS GREATER THAN 2.5mm	3	SPRAYED WATER
4	OBJECTS GREATER THAN 1.0mm	4	SPLASHED WATER
5	DUST-PROTECTED	5	WATER JETS
6	DUST-TIGHT	6	HEAVY SEAS (HOSE PROOF)
6K	DUST TIGHT	7	EFFECTS OF IMMERSION TO 1 METER
		8	INDEFINITE IMMERSION TO SPECIFIED DEPTH
		9K	JET WASH PROOF

ELECTROMAGNETIC CAPABILITY

Meets the requirements for CE marketing of EN50081-2 for emissions and EN50082-2 for susceptibility.

TEST DATA:

- EN6100-4-2 Electrostatic Discharge. 8kV air discharge. 4kV contact discharge. Unit survived.
- ENV50140 Radiated RF Susceptibility. 10V/m, 80MHz-1GHz, 1kHz mod. Maximum recorded output error was <±1%.
- ENV50204 Radiated RF Susceptibility to Mobile Telephones. 10V/m, 900MHz Maximum recorded output error was <±1%.
- EN61000-4-4 Fast Burst Transient. 2kV. 5/50ns, 5kHz for 1 minute. Unit survived.
- ENV50141 Conducted RF Susceptibility. 10Vms. 1kHz mod. 150kHz - 80MHz. Maximum recorded output error was <±1%.

CE MARKING

The CE mark shows that a product complies with the requirements of all European Community Directives relevant to that product.

Also available from Gems

Electro Optic Level sensors

ELS-1100 ELS-1200

- Compact size
- Integral electronics
- No moving parts
- Simple installation

These level sensors use an infrared LED and receiver. When media is in contact with the prism the light is reflected onto the receiver. Manufactured in Polysulphone, the ELS is available in a variety of mountings, power requirements and electrical terminations.

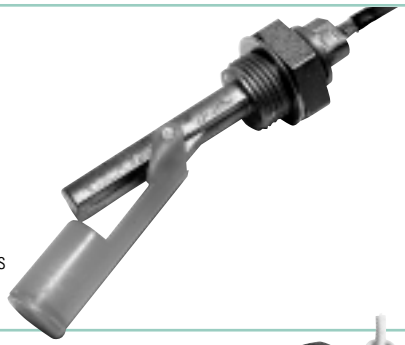
Single Point Level Switches

- Simple working princple
- Precise repeatability
- Cost effective

Gems has a large choice of single float level switches with designs for horizontal or vertical mounting. The wide variety of materials available mean compatibility with most media.

Multiple Point Level Switches

- Robust design
- High vibration and shock resistance
- Customer defined solutions available



Available with flanged or threaded mountings, the Gems multi level switches use the same durable technology as single point switches. With up to 7 switch points per unit and a choice of plastics, brass and stainless steel construction it is possible to configure a solution to almost any application.

Flow Indicators

- Bright visual indication
- Pulse, switch or voltage output options

Today's Rotorflow sensors combine the visual indication of flow with electronic outputs.

Flow Switches

- Rugged, low maintenance design
- Flow rates from 0.005 to 380 l/min

Flow switches are available in paddle, piston and shuttle types with a large choice of connections. Typical applications include machine tool flow monitoring, air conditioning, plastic moulding and laser cooling.

Pressure Switches

- Field-Adjustable or Factory Set Switches
- High Proof Pressure
- Rugged and Dependable

Gems offers a choice of pressure switches, from compact cylindrical models for OEM use, to larger, enclosed units for rugged process applications.

Notes

For Your Fast Response Sales Office

GB	Sales Hotline: + 44 1256 320244 Fax Hotline: + 44 1256 473680	**D**	Sales Hotline: + 49 60 47 9611-0 Fax Hotline: + 49 60 47 9611-11
I	Sales Hotline: +39 02 9330 0154 Fax Hotline: +39 02 9330 0150	**F**	Sales Hotline: + 33 1 48 19 99 70 Fax Hotline: + 33 1 48 19 99 79

A HR SLO	**Lico Industrievertretungen GmbH**	Sales Hotline: Fax Hotline:	+ 43 1 706 4300 + 43 1 706 4131
B	**Doedijns PMC NV**	Sales Hotline: Fax Hotline:	+ 32 3 570 9383 + 32 3 575 1230
S	**Beving Elektronik**	Sales Hotline: Fax Hotline:	+ 46 8 680 1169 + 46 8 680 1188
DK	**Eltech Components AS**	Sales Hotline: Fax Hotline:	+ 45 7010 1410 + 45 4320 0777
FIN	**Stig Wahlstrom OY**	Sales Hotline: Fax Hotline:	+ 358 9 502 4400 + 358 9 452 2735
GR	**Tesima SA**	Sales Hotline: Fax Hotline:	+ 30 210 492 2238 + 30 210 492 2245
NL	**Doedijns PMC BV**	Sales Hotline: Fax Hotline:	+ 31 182 30 2888 + 31 182 30 2777
H	**Lico Hungaria GmbH**	Sales Hotline: Fax Hotline:	+ 43 1 706 43 00 + 43 1 706 41 31
IL	**United Instruments Ltd**	Sales Hotline: Fax Hotline:	+ 972 3 688 3244 + 972 3 537 6157
N	**Hyptech**	Sales Hotline: Fax Hotline:	+ 47 32 80 7400 + 47 32 80 7401
NI	**Parks Automation**	Sales Hotline: Fax Hotline:	+28 9077 7743 +28 9077 7794
P	**Contimetra Instrumentos**	Sales Hotline: Fax Hotline:	+ 351 21386 0500 + 351 21386 1686
E	**Sistec S L**	Sales Hotline: Fax Hotline:	+ 34 93 573 0950 + 34 93 573 0995
CH	**Bachofen AG**	Sales Hotline: Fax Hotline:	+ 41 1 944 1111 + 41 1 944 1233
TR	**Elimko Electronics Imalet Ve**	Sales Hotline: Fax Hotline:	+ 90 312 212 6450 + 90 312 212 4143
RSA	**Transducer Technology**	Sales Hotline: Fax Hotline:	+ 27 11 425 2248 + 27 11 425 2294
CZ EST LV LT	**Amtest**	Sales Hotline: Fax Hotline:	+ 420 572 572 358 + 420 572 572 358

If your country is not listed above, please contact one of the Gems' sales offices on the back cover

LICO Electronics GmbH
Klederinger Str. 31
A-2320 Kledering

Tel. +43 1 706 43 000
Fax. +43 1 706 41 31
email: office@lico.at

www.lico.at
www.bauelemente.at
www.mess-regeltechnik.at

Visit our website at www.mess-regeltechnik.at

Gems Sensors