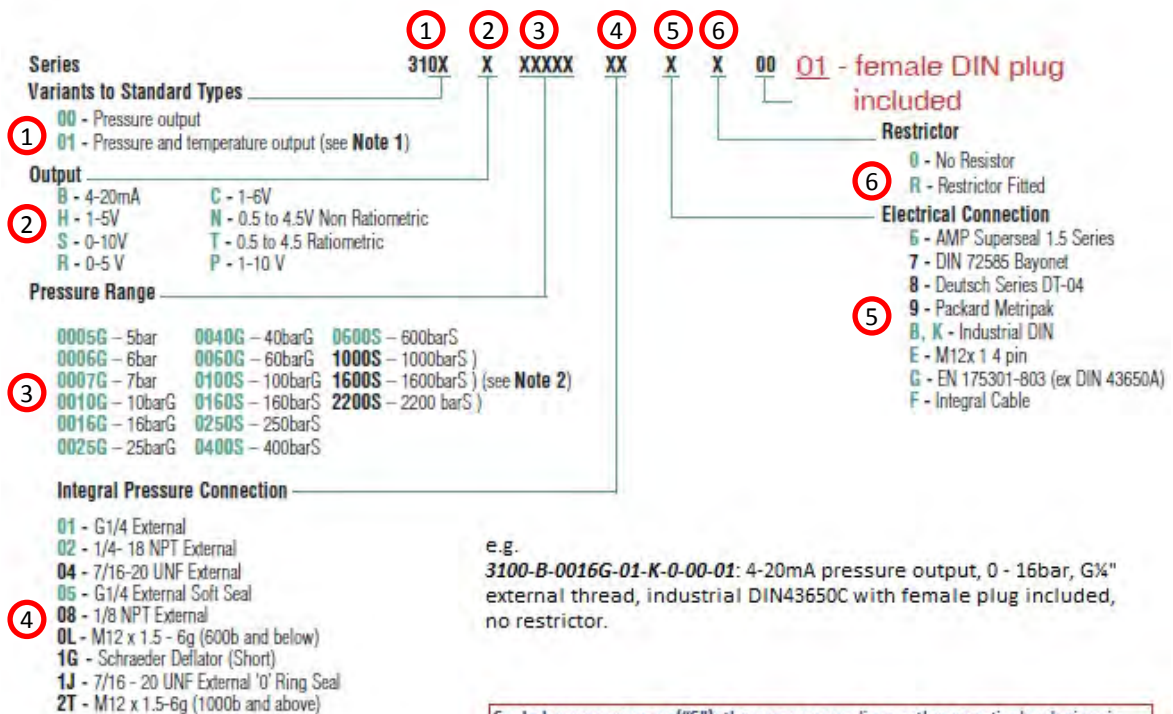


Part numbering guide:

Please see below for the *Electrical Connection* of your unit (step 5) – this relates to the required wiring of terminals.

Note: Electrical Connection **K** (industrial DIN43650C) is different than **B**. The **K** was established to allow direct replacement of a *Gems Sensors 2200 series* with a *Gems Sensors 3100 series* pressure transducer.



Note 1: Pressure and temperature output available with voltage output options C, H, P & N and electrical connectors B, E, G, 7 and 8 only.

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

Sealed pressure range ("S"): the pressure reading on these particular devices is found by comparing the pressure measured at the diaphragm to a sealed, known reference.

- o the reference is sealed inside the sensor during manufacture
 - sealed with the pressure of the day at the time of manufacture (approx. 900-1100mbar)
- o this is transducer is therefore neither an absolute or true gauge unit
 - using this technique however the pressure reading only ends up slightly out
 - the small differential created would be "invisible" in the 4-20mA range of the device as it is so relatively small

Series 3100/3200 Compact High Pressure OEM Pressure Transmitter

IMPORTANT NOTE

All GEMS Pressure, Level & Flow Products are designed and manufactured in accordance with sound Engineering Practice as defined by the Pressure Equipment Directive 97/23/EC. Pressure transducer products designed to meet the highest risk category "IV" of the Pressure Equipment Directive are clearly marked on the label by "CE0086". Compliance is achieved through modules "B+D". No other products should be used as "Safety Accessories" as defined by the PED, Article 1, Paragraph 2.1.3

GENERAL NOTES

The pressure range of the unit must be compatible with the maximum pressure being measured. The functional temperature range must be adhered to. For a detailed account of accuracy over a specific temperature range, consult Gems Sales Department.

Materials: All wetted parts 17-4 PH Stainless Steel.

Ingress Protection: All Transducers/Transmitters have a minimum IP rating of IP65 in accordance with BS EN 60529:1992.

ELECTRICAL

ELECTRICAL VARIATIONS	
Input Description	Output Description
10 to 30V	4 to 20mA
5V±10%	0.5 to 4.5 ratiometric
12 to 30V	0 to 10V
6.5 to 30V	0.5 to 4.5V
7 to 30V	0 to 5V
8 to 30V	1 to 6V

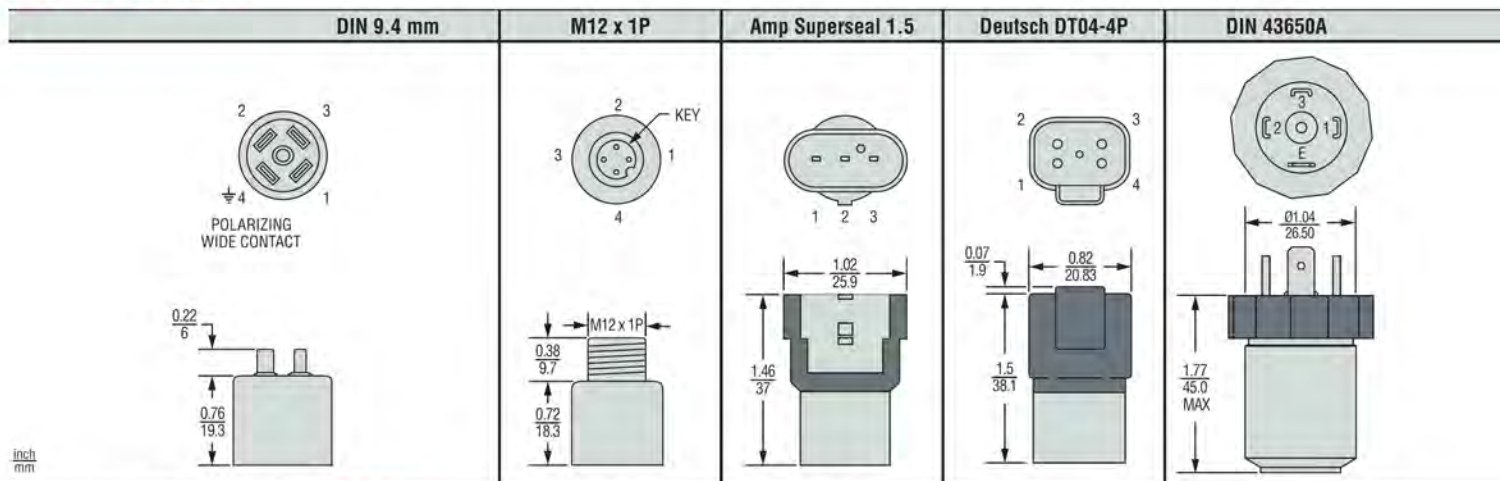
Outputs: Gems Sensors Transducer/Transmitters conform to one of the following electrical variations:

Frequency Response: <1ms for Conditioned Outputs

Maximum Current Draw: 2-wire Transmitter = 20mA, Transducer in voltage mode = 4.5 mA

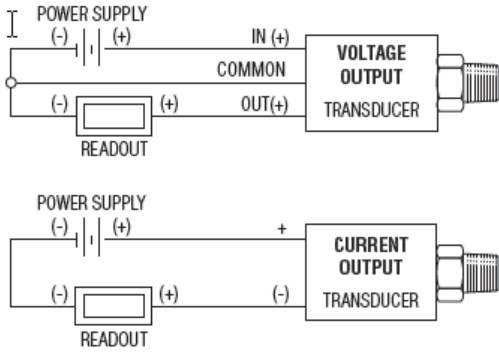
EMC Data: Meets the requirements of CE.

Electrical Connector

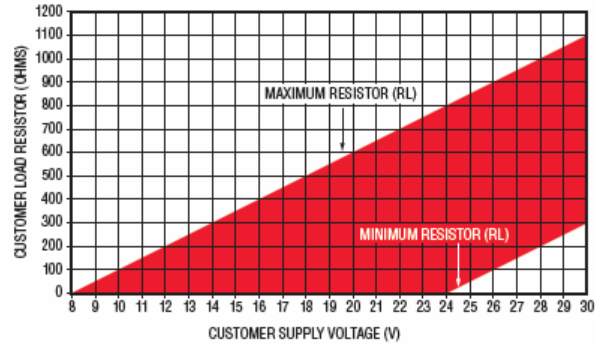


Pin #	Code B		Code R or K		Code E		Code 6		Code 8		Code G	
	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode
1	V _{out 1} (pressure)	No Connect	V _{supply}	Supply	V _{supply}	Supply	V _{out}	No Connect	Ground	Return	V _{supply}	Supply
2	V _{supply}	Supply	Ground	Return	V _{out}	No Connect	Ground	Return	V _{supply}	Supply	Ground	Return
3	V _{out 2} (temp)	No Connect	V _{out}	No Connect	Ground	Return	V _{supply}	Supply	No Connect	No Connect	V _{out}	No Connect
4	Ground	Return	No Connect	No Connect	No Connect	No Connect	—	—	V _{out}	No Connect	No Connect	No Connect

Wiring Diagrams



Current Output Mode (Load Resistor Range)



MECHANICAL

Pressure Ranges: See Table below

Minimum Resistor Value = $50 + (+V-24)$ for $+V > 24V$
 Maximum Resistor Value = $50 + (+V-8)$ for $+V > 8V$

Pressure Range PSI (Bar)	Proof Pressure (x Full Scale)		Burst Pressure (x Full Scale)	
	3100	3200	3100	3200
50-300 (3.5-25)	3.00 x FS	3.00 x FS	40 x FS	
500-1,500 (40-100)	2.00 x FS		20 x FS	
2,000-6,000 (160-400)		10 x FS		
7,500-9,000 (600)		2.50 x FS	4 x FS	10 x FS
10,000 (700)			>60,000 PSI (4,000 bar)	
15,000 (1,000)	1.8 x FS			
25,000 (1,800)	1.40 x FS	1.5 x FS	—	
30,000 (2,200)	—		—	

NPTF (Dryseal) & Standard Tapered Threads: 'Dryseal' Pipe threads are designed to seal pressure tight joints without the need of compounds. To accomplish the seal, the root of both internal and external threads are truncated slightly more than the crests, i.e. roots have wider flats than crests. Therefore, metal-to-metal contact occurs when wrenching and crushing the sharper crests of the mating thread, thus creating the pressure tight joint and preventing spiral leakage. However, where functionally not objectionable, Gems Sensors recommend the use of an Anaerobic sealing compound to ensure an absolute pressure tight seal and minimize thread galling. Standard taper threads require the use of a sealing compound and are not interchangeable with 'R' designated threads.

Installation: Transducers and Transmitters can be installed by either spanner or deep socket. Sizes 22 A/F and 27 A/E. The tightening torque depends upon the material and the sealing mechanism. The tightening torque should not exceed 30Nm in any case.

Vibration: 40g peak to peak sinusoidal (Random Vibration: 20 to 1000 Hz @ approx. 40G peak per MIL-STD-810E)

Operation: Having installed the transducers as instructed, they are ready for use. Before applying power, check that the correct polarity and excitation levels are being applied.

Maintenance: Routine Inspection not required except for periodic inspection of the cable and connector to ensure that these are neither damaged nor softened by incompatible liquid.

Warranty: We guarantee this instrument against faulty workmanship and material for a period of one year from date of delivery. The Company undertake to repair, free of charge, ex-works any instrument found to be defective within the specified period providing the instrument has been used within the specification in accordance with these instructions and has not been misused in any way. Detailed notice of such defects and satisfactory proof thereof must be given to the Company immediately after the discovery and the goods are to be returned free of charge to the Company, carefully packed and accompanied by a detailed failure report. See "Return Policy".



Gems Sensors & Controls
 1 Cowles Road, Plainville, CT 06062
 Toll-Free: 1-800-378-1600

3100 Series and 3200 Heavy Duty Series Compact OEM Pressure Transmitters

- ▶ 0–100 psi to 0-30,000 psi ranges (0-7 bar to 0-2,200 bar)
- ▶ High Proof Pressures
- ▶ Broad Choice of Outputs
- ▶ RoHS Compliant

For OEMs that need consistent high levels of performance, reliability and stability the 3100 and 3200 Series sputtered thin film units offer unbeatable price performance ratio in a small package size. They feature all-stainless steel wetted parts, a broad selection of electrical and pressure connections, and wide choice of electrical outputs to allow stock configurations suitable for most applications without modification. At the heart of both these series is a sputter element that also provides exceptional temperature specifications. Plus, our manufacturing process for the 3100 and 3200 Series include the latest automated equipment, producing the most consistent and best price to performance sensor on the market today.

Additionally, 3200 Series transmitters feature thicker diaphragms and a pressure restrictor to withstand the rigors of cavitations or extreme pressure spikes, delivering years of reliable and stable performance in pulsating applications.

The compact construction of both these series makes them ideal for installation where space is at a premium. And they are fully RoHS compliant.

Specifications

Performance	
Long Term Drift	0.2% FS/YR (non-cumulative)
Accuracy	
3100	0.25% FS
3200	0.5% FS for <1000 psi (60 bar)
Thermal Error	
3100	0.83% FS/100°F (1.5% FS/100°C)
3200	2% FS/100°C for <1000 psi (60 bar)
Compensated Temperatures	-40°F to +257°F (-40°C to +125°C)
Operating Temperatures	-40°F to +257°F (-40°C to +125°C)
Zero Tolerance	
3100	0.5% of span
3200	1% FS for <1000 psi (60 bar)
Span Tolerance	
3100	0.5% of span
3200	1% FS for <1000 psi (60 bar)
Response Time	1 ms
Fatigue Life	Designed for more than 100 M cycles
Mechanical Configuration	
Pressure Port	See under "How to Order," last page
Wetted Parts	17-4 PH Stainless Steel
Electrical Connection	See under "How to Order," last page
Enclosure	IP67 (IP65 for electrical code G)
Vibration	40G peak to peak sinusoidal, (Random Vibration: 20 to 1000 Hz @ approx. 40G peak per MIL-STD-810E)
Shock	Withstands free fall to IEC 68-2-32 procedure 1
EMC (Radiated Immunity)	100 V/m
Approvals	CE, conforms to European Pressure Directive, Fully RoHS compliant, UL recognized files # E219842 & E174228
Weight	35 grams



Individual Specifications

Voltage Output (3-wire)	0 V min. to 10 V max. See under "How to Order," last page
Supply Voltage	2 Volts above full scale to 30 Vdc max @ 4.5 mA (6.5 mA on dual output version)
Source and Sinks	2 mA
Current Output (2-wire)	4-20 mA
Supply Voltage	8-30 Vdc
Maximum Loop Resistance	(Supply Voltage-8) x 50 ohms
Ratiometric Output	0.5 to 4.5 Vdc @ 4 mA (6.5 mA on dual output version)
Supply Voltage	5 Vdc ±10%