

**GEMS SENSORS & CONTROLS****OPERATING & INSTALLATION INSTRUCTIONS  
SERIES 2200/2600****PLEASE READ CAREFULLY BEFORE INSTALLING****Part Number: 560550-0064****Issue: F****INTRODUCTION**

The Series 2200/2600 pressure transducers use molecularly bonded high output strain gauges to provide 100mV output for full range pressure, when used with a 10V d.c. power supply.

Series 2200/2600 high output pressure transducers and transmitters are fitted with an Asic providing various optional (at time of order) voltage outputs, and a 4-20mA current output capable of being used in control and indicating loops without further amplification.

Series 2200/2600 with the CE Mark conform with the essential protection requirements of the EMC Directive 2004/108/EC amended by certified type testing to EN 61326-1 and EN 61326-2-3.

Series 2200/2600 with the CE0086 mark also complies with the requirements of the Pressure Equipment Safety Regulations 2016 and can be used as part of a safety-related system on Category IV pressure equipment.

**HAZARDOUS PRODUCTS**

The Consumer Protection Act of 1987, Section 6 of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 1988 require that we advise recipients and users of our products of any potential hazards associated with their storage, handling or use.

The products which our Company supplies may be classified as Electrical, Electro-Mechanical and Electronic equipment.

These products are tested and supplied in accordance with our published specifications or individual special requirements that are agreed in writing at time of order. They are constructed so as not to affect adversely the safety of persons and property when properly installed, maintained and used by qualified personnel, in the applications for which they were designed and manufactured.

**Conformity with the requirements of the CE mark only applies when the installation conditions described in these instructions have been met. For units supplied without a cable assembly connection to the transducer must be accomplished using Gems Sensors approved cable. See APPROVED CABLE section.**

## **GENERAL**

- \* Transducer should not be subjected to greater than the maximum allowable pressure (P.S.)  
/ Temperature (T.S) as defined on the transducer label.
- \* Transducer should not be subjected to mechanical impact.
- \* In the event of fire the end user must ensure that the system pressure is vented to a safe area.
- \* The effects of decomposition of unstable fluids should be considered by the user when placing this device in service.
- \* The pressure transducer has no means of draining or venting, this must be performed by another component in the end users system.
- \* Pressure range must be compatible with the maximum pressure being measured.
- \* Pressure media must be compatible with the transducer/transmitter wetted parts listed in these instructions.
- \* Liquid must not be allowed to freeze in the pressure port.
- \* The gasket must be fitted under the electrical connector.

## **MECHANICAL INSTALLATION**

**Mounting:** Pressure Transducer is designed to be attached by the coupling thread only. Omni-directional, self supported directly into the pipework. Use a 19mm AF (3/4") spanner on the hexagon provided to apply a maximum torque of 15.8Nm. The Customer must ensure that the pressure seal is suitable for the application. If in doubt contact Gems Sensors.

## **ELECTRICAL INSTALLATION**

All types with the CE Mark include suppression devices providing transient protection to EN 61326-4 and EN 61326-2-3. Conformity with the requirements of the CE mark only applies when connection is made with Gems Sensors approved cable, see APPROVED CABLE section, and is connected as shown below:-

**Millivolt Output Transducers:** Four core screened cable should be used with the cable screen connected to the instrumentation earth. The cable screen should not be connected to the transducer body.

**High Output Transducers/Transmitters:** The screen of the cable must be earthed at the instrumentation end. If an 'Earth Loop' problem is encountered when the body of the unit is earthed by the pipework it is permissible to remove the cable screen from the instrumentation earth.

## **APPROVED CABLE**

Gems sensors uses cables comprising 2, 3 or 4 colour-coded cores, enclosed by an aluminised polyester screen where the screen is in intimate contact with a separate drain wire. The outer sheath is chrome PVC and overall diameter is approximately 4 mm.

**OPERATION**

Having installed the transducers as instructed, they are ready for use. The transducer should not be removed whilst the system is at pressure. Before applying power, check that the correct polarity and excitation levels are being applied. See Table 1 for electrical connections.

**CALIBRATION**

Transducers are calibrated to the datum requested at time of order; this can be identified by the sixth letter of the identification code as follows:-

**A** - Absolute datum

**G** - Gauge datum vented to atmosphere via the electrical connector or cable

**LOAD CHARACTERISTICS** (4-20mA Current Output)

The total resistive load in the loop (to include all the cable resistance) can be from 'zero to 50 x (supply volts -7) ohms' e.g. with a 24V d.c. supply the permissible load is from zero up to 850 ohms.

**OPERATIONAL LIFE:**

Limited to 100M cycles to maximum allowable pressure.

**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 TO FACTORY".

**WETTED PARTS**

316 and 17-4 PH stainless steel plus Nickel Braze to BS1845 : NK3/HTN2.

**SERVICING**

The transducer cannot be repaired locally and if damaged should be returned to ourselves at the address shown below or to accredited dealers when a replacement/repair is required:

Gems Sensors & Controls  
Lennox Road  
Basingstoke  
Hants. RG22 4AW

Gems Sensors Inc  
1 Cowles Road  
Plainville, CT 06062  
U.S.A.

## **RETURN TO FACTORY**

**PLEASE NOTE:** To comply with Health and Safety requirements, the instrument must be clean and safe to handle and accompanied by a formal statement to that effect duly signed by an authorised officer of the Company.

Any instrument returned without certification will be quarantined and no action will occur until cleared. It may ultimately be returned to you and subject to a transportation charge.

## **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.

**TABLE 1**  
**CONNECTIONS 2200/2600 SERIES**

TYPE NUMBER	CE	CONNECTOR	mV					4-20mA			VOLTAGE			
			IN+	OUT+	OUT-	IN-	EARTH	IN+	IN-	EARTH	IN+	COM	OUT+	EARTH
2200A-A2	YES	MINI DIN STYLE	1	2	3	E								
2200A-D2	YES	CABLE EUROPE	R	Y	BL	G								
2200A-F2	YES	CABLE WEATHER PROOF	R	Y	BL	G								
2200A-22	YES	CABLE USA	R	W	G	BK								
2200X-A3	YES	MINI DIN STYLE						1	2	E	1	2	3	E
2200X-D3	YES	CABLE EUROPE						R	BK	DRAIN	R	BK	W	DRAIN
2200X-F3	YES	CABLE WEATHER PROOF						R	BK	DRAIN	R	BK	W	DRAIN
2200X-23	YES	CABLE USA						R	BK	DRAIN	R	BK	W	DRAIN
2600A-12	YES	8-4P	A	B	C	D								
2600A-C2	YES	10-6P	A	B	C	D								
2600A-G2	YES	LARGE DIN	1	2	3	E								
2600A-M2	YES	MOULDED IMMERSIBLE	R	Y	B	W	DRAIN							
2600A-F2	YES	IMMERSIBLE IP67	R	Y	BL	G								
2600A-32	YES	CONDUIT CABLE	R	W	G	BK								
2600AU32	YES	CONDUIT LEADS	R	W	G	BK								
2600X-13	YES	8-4P						A	B	D	A	C	B	D
2600X-C3	YES	10-6P						A	B	E	A	C	B	E
2600X-G3	YES	LARGE DIN						1	2	E	1	2	3	E
2600X-M3	YES	MOULDED IMMERSIBLE						R	BL	DRAIN	R	W	Y	DRAIN
2600X-F3	YES	IMMERSIBLE IP67						R	BK	DRAIN	R	BK	W	DRAIN
2600X-33	YES	CONDUIT CABLE						R	BK	DRAIN	R	BK	W	DRAIN
2600XU33	YES	CONDUIT LEADS						R	BK	G	R	BK	W	G

OUTPUT	SUPPLY VOLTAGE
<b>A</b> 0 to 100mV	10V d.c.
<b>B</b> 4 to 20mA	7 to 35V d.c.
<b>C</b> 1 to 6V	7.5 to 35V d.c.
<b>D</b> 1 to 11V	12.5 to 35V d.c.

OUTPUT	SUPPLY VOLTAGE
<b>H</b> 1 to 5V	6.5 to 35V d.c.
<b>J</b> 0.5 to 5.5V	7 to 35V d.c.
<b>R</b> 0 to 5V	6.5 to 35V d.c.
<b>G</b> 0 to 10V	11.5 to 35V d.c.



## EU DECLARATION OF CONFORMITY



**Manufacturer Name:** Gems Sensors and Controls  
**Manufacturer Address:** Lennox Road, Basingstoke, Hampshire, RG22 4AW  
**Product Type:** **2200 Series**  
 Strain Gauge Pressure Transducers and Pressure Transmitters  
 Full Scale Pressure Range -1 Bar to 400 Bar  
 Operating Temperature Range -40°C to +125°C

**Pressure Equipment Directive:** 2014/68/EU  
 Equipment marked CE0086 is classed as a safety accessory and can be used as a safety-related device on Category IV pressure equipment

**Conformity Assessment Procedure:** CE0086: Modules B + D CE: Sound Engineering Practice

**Module B EC Type Examination Certificate reference(s):** CE72108

**Compliance with other Directives:**

**EMC Directive:** 2014/30/EU  
**Harmonised Standards Used:** BS EN 61326-1:2013 BS EN 61326-2-3:2013

**RoHS2 Directive** 2011/65/EU

### Notified Bodies:

**Notified Body for PED Module B Assessment:**  
 BSI 0086  
 Kitemark Court  
 Davy Avenue, Knowlhill  
 Milton Keynes, MK5 8PP, UK

**Notified Body for PED Module D Assessment:**  
 BSI 0086  
 Kitemark Court  
 Davy Avenue, Knowlhill  
 Milton Keynes, MK5 8PP, UK

**Notified Body for Monitoring Quality Assurance System:**  
 BSI 0086  
 Kitemark Court  
 Davy Avenue, Knowlhill  
 Milton Keynes, MK5 8PP, UK

**This apparatus must not be put into service until the equipment into which it is to be incorporated has been declared in conformity with the provisions of the relevant New Approach Directive**

On behalf of Gems Sensors and Controls, I declare that on the date the product(s) listed on this declaration is placed on the market, the product(s) conforms with all technical and regulatory requirements of the above listed directives.

 (signature)

Nick Blomfield  
 Site Leader and Director of Finance EMEA

16/5/18 (date)

560830 Issue H



## EU DECLARATION OF CONFORMITY



**Manufacturer Name:** Gems Sensors and Controls  
**Manufacturer Address:** Lennox Road, Basingstoke, Hampshire, RG22 4AW  
**Product Type:** **2600 Series**  
 Pressure Transducer and Pressure Transmitter  
 Full Scale Pressure Range -1 Bar to 400 Bar  
 Operating Temperature Range -40°C to +125°C

**Pressure Equipment Directive:** 2014/68/EU  
 Equipment marked CE0086 is classed as a safety accessory and can be used as a safety-related device on Category IV pressure equipment

**Conformity Assessment Procedure:** CE0086: Modules B + D CE: Sound Engineering Practice

**Module B EC Type Examination Certificate reference(s):** CE72108

**Compliance with other Directives:**

**EMC Directive:** 2014/30/EU  
**Harmonised Standards Used:** BS EN 61326-1:2013 BS EN 61326-2-3:2013

**RoHS2 Directive** 2011/65/EU

### Notified Bodies:

**Notified Body for PED Module B Assessment:**  
 BSI 0086  
 Kitemark Court  
 Davy Avenue, Knowlhill  
 Milton Keynes, MK5 8PP, UK

**Notified Body for PED Module D Assessment:**  
 BSI 0086  
 Kitemark Court  
 Davy Avenue, Knowlhill  
 Milton Keynes, MK5 8PP, UK

**Notified Body for Monitoring Quality Assurance System:**  
 BSI 0086  
 Kitemark Court  
 Davy Avenue, Knowlhill  
 Milton Keynes, MK5 8PP, UK

**This apparatus must not be put into service until the equipment into which it is to be incorporated has been declared in conformity with the provisions of the relevant New Approach Directive**

On behalf of Gems Sensors and Controls, I declare that on the date the product(s) listed on this declaration is placed on the market, the product(s) conforms with all technical and regulatory requirements of the above listed directives.

 (signature)

Nick Blomfield  
 Site Leader and Director of Finance EMEA

16/5/18 (date)

560894 Issue H



# SCATTERGOOD & JOHNSON LTD

ELECTRICAL ENGINEERING & FLUID CONTROL DISTRIBUTORS

Est.1899

At Scattergood & Johnson Ltd, we pride ourselves on being a technical distributor to specialist industries.

Working with a range of quality product suppliers across a number of specialist markets, we are not your average 'box shifter' - we are your technical and supply chain partner.

We fully support every product we sell - for free! Our internal team and external sales engineers can answer any product or application question, no matter the complexity.

Backing up this technical ability is a range of 50,000+ products available from stock for nationwide next day delivery (same day if required!), or you can collect what you need from any of our trade counters around the UK.

Select your specialist interest below to learn more about how we can help.



Online, In Branch and On the Road - Scattergood & Johnson Ltd, there when you need us.

# [www.scatts.co.uk](http://www.scatts.co.uk)