

GEMS SENSORS & CONTROLS

OPERATING & INSTALLATION INSTRUCTIONS

FLAME PROOF SERIES 3XEA

Part Number: 560550-0131

Issue: B



**PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLING
KEEP INSTRUCTIONS ACCESSIBLE TO ALL USERS AT ALL TIMES**

For all customer enquiries, contact:-



01256 320244



www.gemssensors.com



sales@gems-sensors.com



Customer Services, Gems Sensors & Controls, Lennox Road, Basingstoke, Hants, RG22 4AW

INTRODUCTION

The 3XEA series product is a pressure transducer which provides linear electrical output proportional to applied pressure and is intended for use for pressure measurement.

CERTIFICATION

Series 3XEA has been certified to ATEX standards for use in hazardous areas and the installation instructions given in this booklet must be adhered to.

Certification is by ATEX Certificate Number Baseefa14ATEX0235X. This indicates a Safety Classification of E II 2G, Ex d IIC T4 Gb (Tamb = -40°C to +95°C).

Conformity with the requirements of the Approval Certificate only applies when the installation conditions described in these instructions have been met.

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.

Products which are supplied per this bulletin 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 installed, maintained and used by qualified personnel, in the application for which they were designed and manufactured.

GENERAL

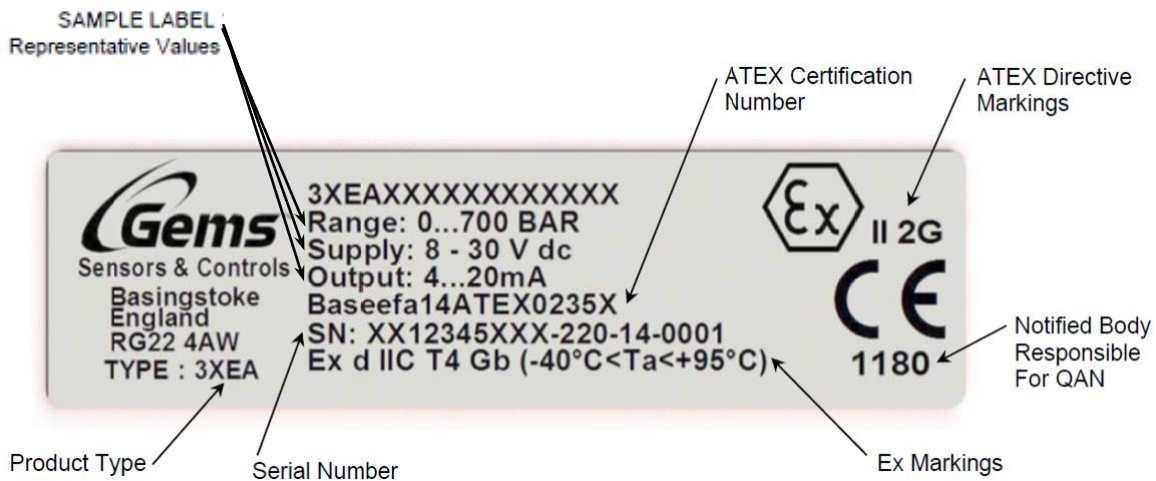
The equipment is designed and manufactured to:

- a) Avoid physical injury or other harm which may be caused by direct or indirect contact.
- b) Ensure that excess surface temperature of accessible parts or radiation which would cause a danger is not produced.
- c) Eliminate non-electrical dangers which are revealed by experience.
- d) Ensure that foreseeable conditions of overload will not give rise to dangerous situations.

Provided that:

- 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.

Please check according to label details below:



INSTALLATION & SPECIFIC CONDITIONS OF USE

- Install and start up the transducer ONLY if it is in a faultless condition
- Screw or unscrew the transducer using the pressure port hexagon flats ONLY and observe the prescribed torque
- Do NOT use the hexagon on the electrical connector housing for screwing or unscrewing the transducer into a pressure connection, only for installing to electrical conduit.
- Avoid mounting the transmitter near a source of heat / cold which is liable to create a temperature gradient across the instrument. If this is unavoidable, use a heat shield to deflect uneven radiation or wrap the transmitter in insulation so that an even temperature is assumed throughout.
- Cable screen is not connected to the transducer housing. The simultaneous connection of case and shield wire to ground is only permitted if ground loop problems can be excluded.
- Switch on the operating voltage only after establishing the electrical connection in order to avoid any spark formation.
- Electrical connection to the transducer should only be used as originally supplied. Bypassing or modifying electrical connection (with the exception of cable length) will invalidate explosion protection classification per certification.
- Integral cable should be subjected to a minimum bend radius of 75mm.
- The permanently attached cable shall be suitably protected from impact when in use.
- The pressure sensing diaphragm has been rated for 10 million cycles over the life of the product. Do not exceed the manufacturers' specifications.

TOOLS REQUIRED FOR INSTALLATION:

Transducer Mounting: Wrench 22mm or 27mm depending on hex

'O' Rings: Transducers are not shipped with soft seals. Process connections which require a soft seal ('O' ring) are the responsibility of the installer. They must be suitable for both application temperature and relevant media.

ELECTRICAL INSTALLATION

Installation of this type must be carried out in accordance with the Approved Installation drawing.

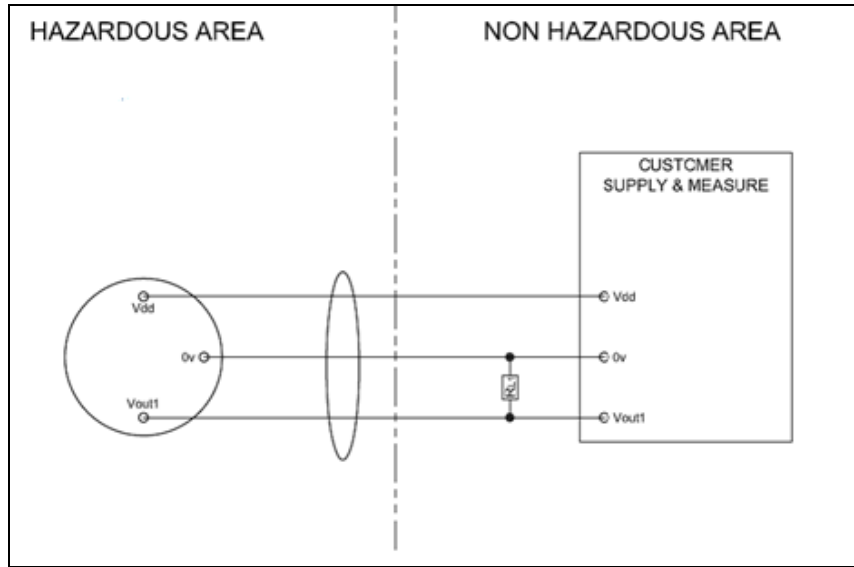
Voltage Applications:

The following schematic is applicable for any voltage output – only pull-down configuration shown. External load (R_{L1}) is optional and can be connected between Vout1 and EITHER supply rail.

With “0V offsets”, pull-up resistors cannot be used.

Application Schematic (Example):

Absolute Output Mode: (Typical output ranges are 0-10V, 0-5V, 1-6V and 1-5V)



Parameter	Min	Typ	Max	Units	Comments
Supply Voltage (Vdd)	8		30	V	Measured at the input to the transducer terminals.
Supply Head-Room to Vout1 Output	1			V	Example: 0-10V doable from 11V supply. This is only valid with no external leads

Ratiometric Output Mode: (Typical output ranges are 0.5-4.5V(r) and 0.25-4.75V(r))

Various Optional failure diagnostics exist – consult factory:

Parameter	Min	Typ	Max	Units	Comments
Supply Voltage (Vdd)	4.5	5	5.5	V	

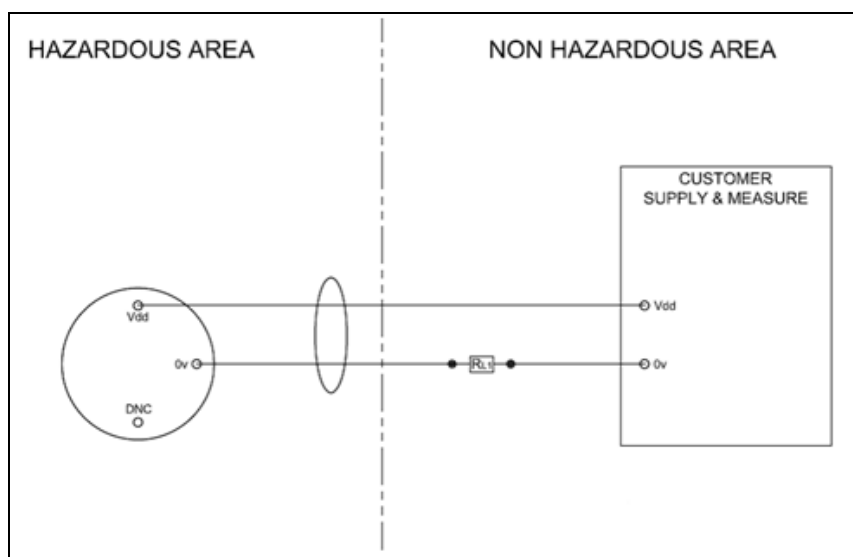
General Voltage Output Modes: (Additional Voltage Mode Specification)

Parameter	Min	Typ	Max	Units	Comments
Operating Current Draw		3.5	5.5	mA	With no external loads
Output Impedance	-10%	80	+10%	Ω	
External Load (sink/source current)			2	mA	Any external output load must not sink or source more than 2mA. Consult factory for further limitations

CURRENT APPLICATIONS

The external loop load (R_L) is optional within limits specified below and includes all connection/harness resistances. Load can be placed in either supply line.

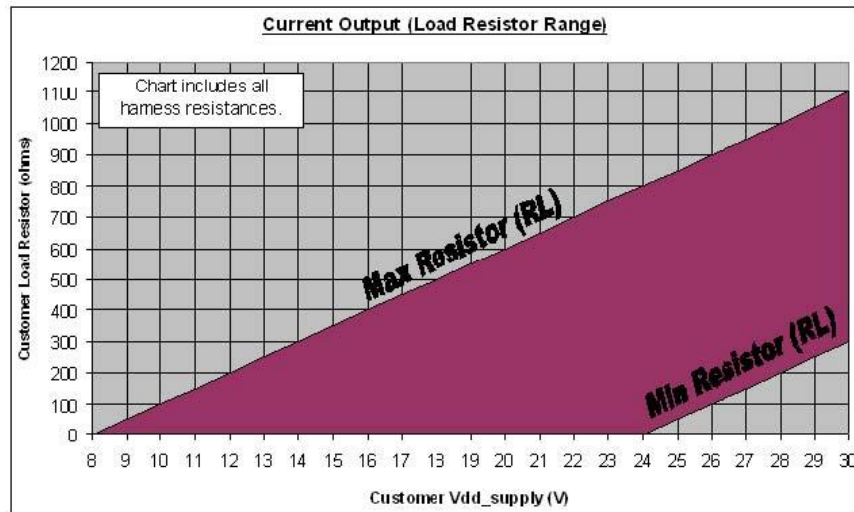
Application Schematic (Example):



Current Output Mode: (Typical output is 4-20mA)

Parameter	Min	Typ	Max	Units	Comments
Supply Voltage (Vdd)	8		24	V	Measured at the input to the transducer terminals.
Pressure Output Current	4		20	mA	Current loop will limit between 25-28mA for protection on overpressure, supply dependent.

R_L Load Limitations for Current Output Mode:



Min Resistor (RL) = 50 * (Vdd - 24) : for Vdd >24V

Max Resistor (RL) = 50 * (Vdd - 8) : for Vdd >8V

SERVICING

The transducer is not to be repaired by the user and must be replaced by an equivalent certified unit. Repairs should only be carried out by the manufacturer or an approved repairer.

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 authorized 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

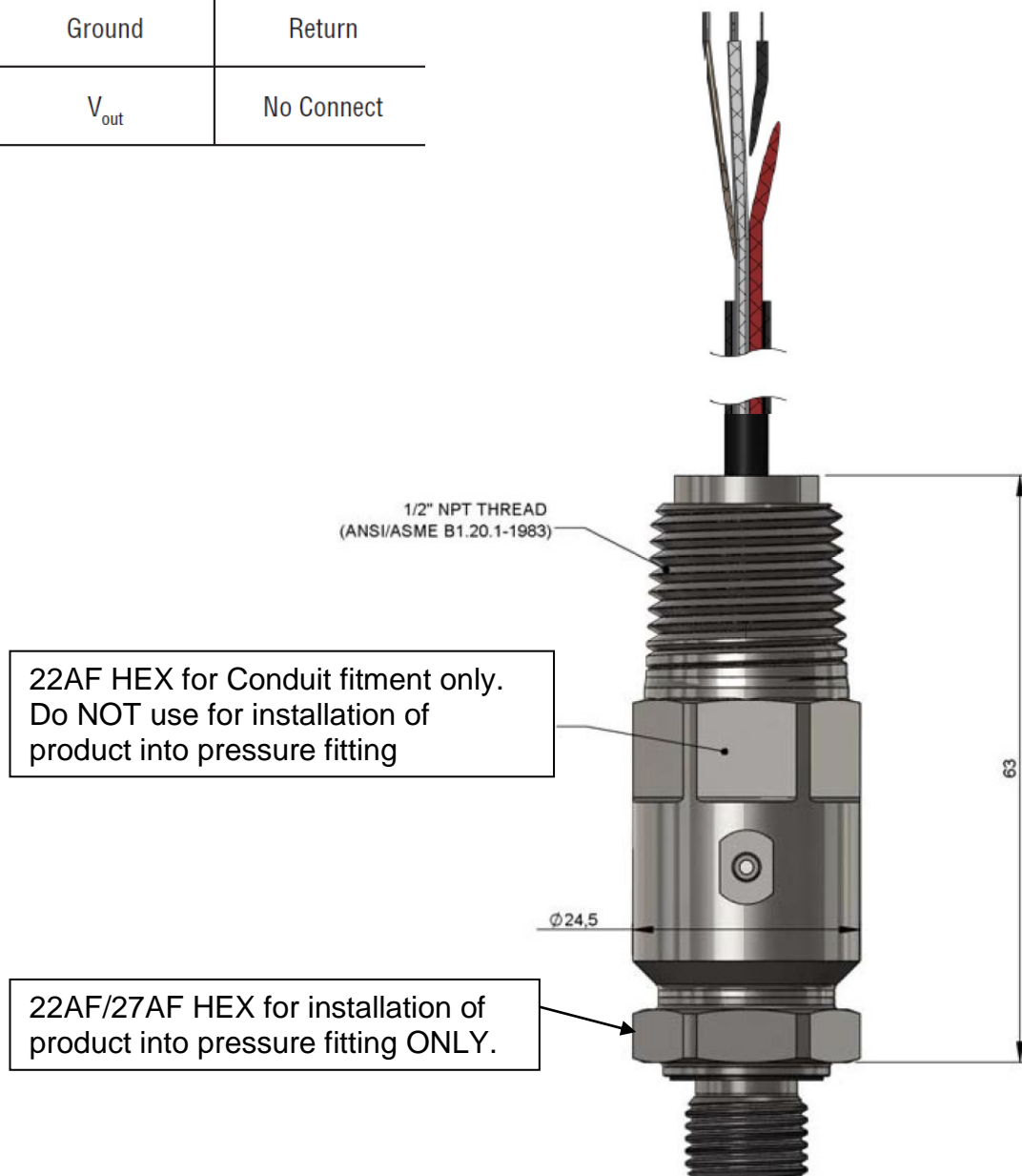
STORAGE & DISPOSAL

When storing or disposing of transducer, take precautions with remaining media – it may be hazardous or toxic. Refit thread protection cap during storage periods.

Dispose of transducer and packaging materials in accordance with local waste treatment disposal regulations of the country or region to which the instrument is supplied.

CONNECTION INFORMATION

Wire Color	Voltage Mode	Current Mode
Red	Supply	Supply
Black	Ground	Return
White	V _{out}	No Connect



EC DECLARATION OF CONFORMITY

Manufacturers Name: Gems Sensors & Controls
Manufacturers Address: Lennox Road, Basingstoke, Hants, RG22 4AW
Product Type: 3XEA
Description: Flameproof Industrial Pressure Transducers
Date of Issue: September 2014

Gems Sensors & Controls hereby declares that the product above conforms with the essential protection requirements of the following EC Directives:

PED: *Equipment marked CE0086 complies with the requirements of the Pressure Equipment Directive 97/23/EC and is classed as a safety accessory and can be used as a safety-related device on Category IV pressure equipment. Conformity assessment procedure followed is to Modules B+D. Module B EC Type examination certificate number CE72108 issued by BSI 0086 Kitemark Court, Davy Avenue, Knowlhill, Herts, HP2 4SQ, England. The notified body monitoring the quality assurance system is BSI 0086 Milton Keynes, MK5 8PP, England. The Technical Specifications used are Gems Sensors Design Standards.*

SAFETY: *"For the equipment within which this component is installed to comply with the Low Voltage Directive 2006/95/EC, this product must be powered from a Safety Extra Low Voltage (SELV) source of 42V peak maximum.*

When the power source is derived from a transformer this must conform to EN 60742 or equivalent, with intrinsic short circuit protection. The power source to this component must also incorporate suitable over-current protection related to the current rating of this component"

ATEX: *Equipment marked with the certificate number 14ATEX0235X and also marked Ex d IIC T4 Gb complies with the requirements of the EU Directive 94/9/EC Equipment by compliance with the Essential Health & Safety Requirements of Harmonised Standard EN 60079-0 : 2012 and EN 60079-1 : 2007*

Notified Body for EC-Type Examination & Production
Baseefa 1180
Buxton, 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.



.....
Signed for and on behalf of
Gems Sensors & Controls
Joe Dalek
Operations Manager
England

564151 Issue A