

4P SERIES PELLISTOR

002828

Issue 4

Combustible Gas Sensor

Instructions for Safe Use

Instructions specific to hazardous area installations (reference European ATEX Directive 2014/34/EU, Annex II, 1.0.6.)

The following instructions apply to equipment covered by certificate numbers
Sira 01ATEX1205X, CSAE 22UKEX1146X and IEC Ex SIR 04.0013X.

MARKING

The 4P Series gas sensing head is available in several formats depending upon the operating voltage of the sensing elements. The certification marking is shown below using the 4P-75 gas sensing head as an example:

4P Product Marking

SIRA 01ATEX1205X, CSAE 22UKEX1146X, II 1G(IIC T6 or T5); 2G(IIC T4)
Ex da IIC Ga (T6 or T5) – 1.0W (-20°C to +40°C) or 0.5W (-20°C to +55°C)
Ex db IIC Gb (T4) – 1.5W (-20°C to +55°C)

IEC Ex SIR 04.0013X

Ex da IIC T6 Ga Pi = 1 W

Ex da IIC T5 Ga

Tamb -20°C to +55°C Pi = 0.5 W

Ex db IIC T4 Gb

Tamb -20°C to +55°C Pi = 1.5 W

Ex db IIC T4 Gb

Tamb -40°C to +65°C Pi = 1.05 W



INSTRUCTIONS FOR SAFE INSTALLATION

- While pellistors are typically not sensitive to orientation and can be mounted in any orientation with no significant effect on performance, pellistors should be installed with a mounting method that should ensure a gas tight seal.
- Sensor pins must not be soldered to, as excessive heat may damage the sensor. Connectors are available to assist in mounting the sensors to PCBs. Please contact Honeywell for further details.
- The equipment has not been assessed as a safety related device (as referred to by Directive 2014/34/EU Annex II, clause 1.5).
- Installation of the equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice (e.g. EN/IEC 60079-14).
- This sensor is not a standalone device. It is the responsibility of the detector/instrument manufacturer or designer that uses the sensor to ensure that the sensors are connected to ground with a maximum impedance of $10^9\Omega$.

INSTRUCTIONS FOR SAFE USE

- It is recommended that confirmation of adequate sensor performance be conducted on a regular basis by means of a defined, sensor calibration procedure. The calibration frequency will depend upon the environment in which the sensor is operated and on the perceived level of risk from the build up of flammable atmospheres.
- Certain substances are known to have a detrimental effect on catalytic elements as used in the 4P Series Gas Sensing Head.

Poisoning

Some compounds will decompose on the catalyst and form a solid barrier over the catalyst surface. This action is cumulative and prolonged exposure will result in an irreversible decrease in sensitivity. The most common of these substances are lead or sulphur containing compounds, silicones and phosphates.

Inhibition

Certain other compounds, especially hydrogen sulphide and halogenated hydrocarbons, are absorbed or form compounds that are absorbed by the catalyst. The resultant loss of sensitivity is temporary and in most cases a sensor will recover after a period of operation in clean air.

- The 4P range of sensors are designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check) before each use of the sensor and/or instrument. Failure to carry out such tests may jeopardise the safety of people and property. Use of the sensor outside of these parameters may result in inaccurate gas measurement and possible sensor damage.
- Excessive vibration and shock can result in mechanical breakage of the sensor.

- The certification of this equipment relies upon the following materials used in its construction:

Enclosure material	316 stainless steel, which contains less than 6 % magnesium	
Sinter	316 stainless steel 316L	
Cement	CW2248/HY956EN	STYCAST 2651MM CAT 9
Manufacturer	Huntsman	Loctite
Type of compound	Epoxy resin	Epoxy resin
Colour	Beige (natural)	Black
Filler type and %	55.2 % trihydrated Al ₂ O ₃	
Other additives	8.3 %	
Surface treatments	None	None
Operating temperature	-40°C to 130°C	-40°C to 130°C
Honeywell reference	RM 497-L5	RM 462-L5

- If the equipment is likely to come into contact with aggressive substances¹, then it is the responsibility of the user to take suitable precautions² that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

¹**Aggressive substances:** e.g. acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.

²**Suitable precautions:** regular checks as part of routine inspections or establishing from the material's data sheet that it is resistant to specific chemicals.

PERFORMANCE SPECIFICATIONS & LIMITATIONS OF USE

Measurement Range	0 % to 100 % LEL	Operating Temperature Range	-20°C to 55°C
Operating Pressure Range	1 atm ± 20 %	Operating Humidity Range	0 %RH to 90 %RH non-condensing

Electrical Characteristics			
	4P-50	4P-75	4P-90
Operating Voltage (Vdc)	4.25 ±0.02	3.00 ±0.02	3.30 ±0.02
Detector Operating Current (mA)	56 ±6	75 ±7	75 ±7
Maximum Power Consumption (mW)	276	263	288

SPECIFIC CONDITIONS OF USE (DENOTED BY X AFTER THE CERTIFICATE NUMBER)

IEC Ex SIR 04.0013X

- When incorporating the sensing head into equipment the following applies:
 - The maximum input power $P_i = 1.0$ W for T6 at $T_a = 40^\circ\text{C}$ or
 - The maximum input power $P_i = 0.5$ W for T5 at $T_a = 55^\circ\text{C}$ or
 - The maximum input power $P_i = 1.5$ W for T4 at $T_a = 55^\circ\text{C}$
 - The maximum input power $P_i = 1.05$ W for T4 at $T_a = 65^\circ\text{C}$
- The sensor is not a standalone device, it is the responsibility of the detector/instrument manufacturer or designer that use the sensor to ensure that the sensors are connected to ground with a maximum impedance of $10^9 \Omega$.
- This equipment is to be only used with portable combustible gas detectors, in accordance with the requirements of Clause 4.2 of IEC 60079-1:2014.

Sira 01ATEX1205X

1. The 4P Series Sensing Head is designed to be connected to a gas detector that provides an intrinsically safe supply with a maximum output power (P_o) not greater than:

Temperature Classification		
Temperature Classification	Maximum Ambient Temperature	Maximum Power Output (P_o)
T6	40°C	1.0 W
T5	55°C	0.5 W
T4	55°C	1.5 W
T4	65°C	1.05 W

2. The user/installer shall be advised that the certificate number SCS Ex95Y1017U does not relate to these products.
3. The sensor is not a standalone device, it is the responsibility of the detector/instrument manufacturer or designer that use the sensor to ensure that the sensors are connected to ground with a maximum impedance of $10^3\Omega$.
4. This equipment is to be only used with portable combustible gas detectors, in accordance with the requirements of Clause 4.2 of EN 60079-1:2014.

CSAE 22UKEX1146X

1. The 4P Series Sensing Head is designed to be connected to a gas detector that provides an intrinsically safe supply with a maximum output power (P_o) not greater than:

Temperature Classification		
Temperature Classification	Maximum Ambient Temperature	Maximum Power Output (P_o)
T6	40°C	1.0 W
T5	55°C	0.5 W
T4	55°C	1.5 W
T4	65°C	1.05 W

2. The user/installer shall be advised that the certificate number SCS Ex95Y1017U does not relate to these products.
3. The sensor is not a standalone device, it is the responsibility of the detector/instrument manufacturer or designer that use the sensor to ensure that the sensors are connected to ground with a maximum impedance of $10^3\Omega$.
4. This equipment is to be only used with portable combustible gas detectors, in accordance with the requirements of Clause 4.2 of EN 60079-1:2014.

RETURN OF FAULTY PRODUCT

4P sensors are non-repairable products. Faulty products should be returned to the manufacturer address below, accompanied by the manufacturers RMA form (found within the quality section of www.honeywell.com).

Manufacturer Address : City Technology Ltd.,
City Technology Centre,
Walton Road,
Portsmouth, Hampshire,
Great Britain, PO6 1SZ

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide information or engineering support for its products through Honeywell personnel, literature and website, it is the buyer's sole responsibility to determine the suitability of the Honeywell product(s) for the buyer's requirements.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

For more information

Honeywell Sensing Solutions services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, visit [automation.honeywell.com/hss](https://www.automation.honeywell.com/hss) or call:

USA/Canada	+302 613 4491
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Europe	+44 1344 238258
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