

## FLAMEPROOF Gas Sensor Housing Type GSH4-P fitted with PCB for a Premier Infrared Gas Sensor

ATEX Certified II 2 G Ex db IIC T4 Gb

IECEX Certified Ex db IIC T4 Gb

Ta = -20°C to +60°C



### FEATURES INCLUDE: -

- ATEX and IECEX Certified explosion proof Exd housing for Premier infrared sensors
- Stainless steel housing with tamperproof protection
- For use with separately certified, industry standard junction boxes or OEM gas detector enclosures.
- Compact Size
- Various mounting threads available M20, 1/2" NPT, 3/4" NPT
- Housing can be opened to gain access to the plug-in sensor.
- Gas sampling adaptor accessory available for easy calibration.
- Rainguard accessory with gas sampling feature also available to protect the sensor in wet environments or areas subjected to hosing.

<b>Specification</b>	
Type	Exd Certified Flameproof sensor housing.
Housing Material	Stainless Steel grade 303, (Grade 316 available at additional cost)
Body Dimensions	40 mm Diameter x 60 mm Long (excluding a thread length of up to 20mm)
Weight (approx)	280 grams
Operating Temp	-20°C to +60°C See note 1 below.
Storage Temp	-20°C to +60°C See note 1 below.
Humidity Range	0 to 95% R.H. Non-condensing
Sensor Supply Voltage	3.0 – 5.0 V dc, 75-85mA operating current.
Electrical Output	Either "voltage" output or pellistor replacement "Bridge" output, specify when ordering.
Gas Type	Hydrocarbon or carbon dioxide
Sensor Type	Premier infrared
Measuring Range	Dependent upon sensor type specified when ordering
Response Time	T90 = <30sec. Note that the response time will be increased when the optional PTFE filter is fitted. Response time is dependent upon gas type and concentration.

<b>Hazardous Area Certification</b>	
<b>ATEX</b>	SIRA 10ATEX1358X II 2 G Ex db IIC T4 Gb (T <sub>amb</sub> = -20°C to 60°C) EN 60079-0 :2012+A11 :2013, EN 60079-1 :2014
<b>IECEX</b>	IECEX SIR 10.0184X Ex db IIC T4 Gb (T <sub>amb</sub> = -20°C to 60°C) IEC 60079-0 :2011 Edition 6.0, IEC 60079-1 :2014-06 Edition 7
<b>Ambient Temperature</b>	-20 to +60 ° C (T4) (See note 1)
<b>Zones</b>	1 & 2

<b>Connection details</b>	
Wire function	Wire colour
<b>+ ve Supply</b>	<b>POSITIVE</b> sensors: Blue
	<b>NEGATIVE</b> sensors: Yellow
<b>- ve Supply</b>	<b>POSITIVE</b> sensors: Yellow
	<b>NEGATIVE</b> sensors: Blue
<b>Output</b>	White
<b>RX pin</b>	Brown, (See note 2)
<b>TX pin</b>	Orange, (See note 2)

Notes:

- 1 The temperature ranges stated here refer to the GSH4 Exd sensor housing only. Refer to the relevant sensor data sheet for the sensor specifications.
- 2 When the data communications facility is not required, the ends of the brown and orange wires should be insulated and secured to prevent electrical contact with any other wires or metalwork.

## **Instructions for fitting a sensor inside the housing**

- 1) Loosen the grub screw using a 2mm A/F hexagon key. Ensure that the screw is sufficiently removed to prevent it from contacting the internal threads of the sensor housing.
- 2) Unscrew the cover by turning it anti-clockwise.
- 3) Insert the sensor into the sockets on the circuit board, ensuring that it is fully pressed into position.
- 4) The assembly contains a black plastic spacer that fits over the sensor to reduce “dead space” and to provide a good seal to the inside of the cover of the housing. Gently fit the plastic spacer over the sensor, ensuring that it comes into close contact with the top of the sensor. Note that the spacer contains an internal O-ring, some resistance will therefore be felt as the spacer is fitted over the sensor.  
Also included is a foam washer beneath which is a PTFE filter to prevent the ingress of water or dust. Whilst offering environmental protection, this filter will increase the gas response time. If preferred, the filter can be removed, after temporarily removing the foam washer.
- 5) Carefully replace the cover by screwing it clockwise until the gap between the cover and flange of the housing is closed. Note that there will be some resistance as the gap closes because of the compression of the foam washer and the internal O-ring that provides a seal.
- 6) Re-tighten the grub screw, avoiding excessive force.



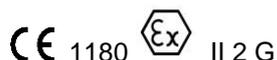
## Installation Instructions for Sensor Type GSH4

The following instructions are specific to hazardous area installations and apply to GSH4 Gas Sensors covered by certificate numbers **Sira 10ATEX1358X** and **IECEx SIR 10.0184X**.

The ATEX/IECEx certification markings are as follows:

Ex db IIC T4 Gb ( $T_{amb} = -20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ )

### **For ATEX certified equipment only:**



### **(reference European ATEX Directive 2014/34/EU)**

- 1 The “XXX” contained within the type number GSH4 XXX is used to define the specific detector element contained within the sensor.
- 2 The GSH4 XXX Series Gas Sensor incorporates integral cabling, which requires suitable protection and termination, and consequently it must not be used as a stand-alone item in a hazardous area without further protection.

### **THE FOLLOWING SPECIAL CONDITIONS FOR SAFE USE APPLY: -**

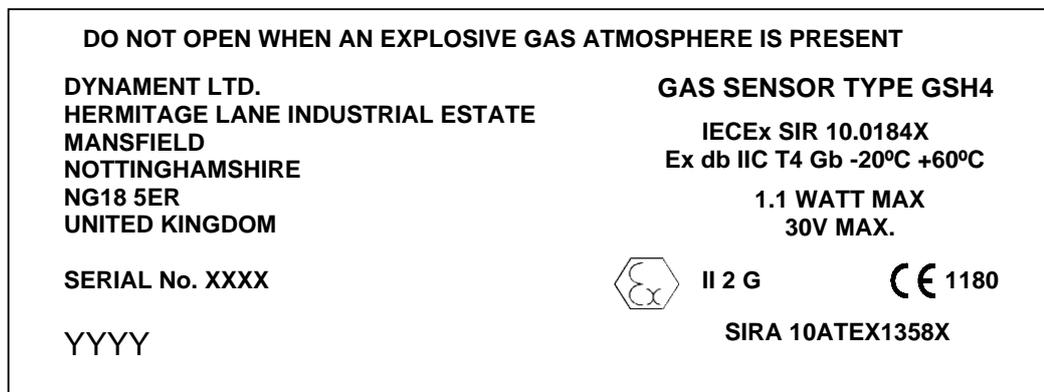
- a) It is the user’s responsibility to ensure that earth continuity is maintained via the mounting arrangement.
  - b) The integral conductors must be suitably mechanically protected and terminated in a suitable terminal or junction facility.
  - c) The integral conductors shall be suitably clamped within 100 mm of the point at which they exit the body of the Gas Sensor Type GSH4 XXX.
  - d) The insulation of the integral conductors shall not be subjected to a temperature greater than  $105^{\circ}\text{C}$ .
- 3 The sensor is only certified for use in ambient temperatures in the range  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  and must not be used outside this range.
  - 4 The maximum power rating is 1.1W, with an operating voltage range of 0 to 30V.
  - 5 Assembling and dismantling: - The sensor is supplied fully assembled. No dismantling is required during normal service. The sensor must not be removed from its mounting when in use in a potentially explosive atmosphere.
  - 6 Maintenance: - The user should ensure that the sensor opening is kept free from blockages such as a build-up of dust or dirt that would otherwise restrict gas flow.
  - 7 Servicing: - Power must be removed from the sensor and it must be established that there is no potentially explosive gas atmosphere present before servicing can commence. The only user serviceable part is the detector element contained within the sensor. A grub screw that must be loosened using a 2mm A/F hexagon key retains the sensor cover. When replacing the cover, the threads must be fully engaged and the grub screw must be re-tightened.
  - 8 Emergency repairs: - The sensor is not an item to which emergency repairs can be made.
  - 9 Adjustment: - There are no adjustment facilities on the GSH4 XXX Series Gas Sensor

- 10 The GSH4 XXX Gas Sensor has not been assessed as a safety-related device (EHSR 1.5).
- 11 The end user/installer shall be aware that the certification of the GSH4 XXX Gas Sensor relies upon the following materials used in its construction, which are suitable for most common applications:

Outer housing: stainless steel  
 Sintered filter: stainless steel  
 Encapsulant: epoxy resin

In accordance with the note in EN 60079-0, the end user/installer shall inform the manufacturer of any adverse conditions that the GSH4 XXX Gas Sensor may encounter. This is to ensure that the GSH4 XXX Gas Sensor is not subject to conditions that may cause degradation of these materials.

- 12 The GSH4 XXX Gas Sensor carries the following certification marking:



Notes:

Additional information not ratified by SIRA may also appear on the gas sensor.  
 YYYY denotes the year of manufacture  
 ZZZZ denotes the thread form

## Accessories



GSH4 fitted with optional Rainguard  
Type GSH4 - GUARD featuring a  
gas-sampling tube for gas checks.

GSH4 fitted with optional Calibration  
Adaptor Type GSH4 -CAL-ADTR



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