GMT Toxic Gas Detection Head

Hydrogen Sulphide (H_2S)

- **UTILISES WELL PROVEN AND RELIABLE SENSOR TECHNOLOGY**
- **SUITABLE FOR HAZARDOUS AREA USE (WITH SUITABLE ZENER BARRIER)** **II 1 G EEx ia IIC T4**
- **INDUSTRY STANDARD ANALOGUE 4 ~ 20 mA O/P**
- **SIMPLE CONSTRUCTION ALLOWS EASY SENSOR REPLACEMENT**
- **VERY ROBUST STAINLESS STEEL CONSTRUCTION**

GMT Detection Head

The GMT range of detection heads provides a comprehensive range of toxic gas detectors for connection to our gas detection control panels. They are designed to provide a rugged, reliable, easy to maintain solution to your fixed gas detection needs. They can be used in safe area locations or when used with a suitable zener barrier device in all flammable hazardous areas as they are also designed to be intrinsically safe (ia).

Gas Information Hydrogen Sulphide (H_2S)

Hydrogen Sulphide is the chemical compound with the formula H_2S. This colorless, toxic and flammable gas has a foul odour of rotten eggs. It often results from the bacterial break down of sulfites in nonorganic matter in the absence of oxygen, such as in sewers (anaerobic digestion). It also occurs in volcanic gases, natural gas and some well waters. The odour of H_2S is commonly misattributed to elemental sulphur, which is in fact odorless.

Hydrogen sulfide is considered a broad-spectrum poison, meaning that it can poison several different systems in the body, although the nervous system is most affected.. It forms a complex bond with iron in the mitochondrial cytochrome enzymes, thereby blocking oxygen from binding and stopping cellular respiration.

Exposure to lower concentrations can result in eye irritation, a sore throat and cough, nausea, shortness of breath, and fluid in the lungs. These symptoms usually go away in a few weeks.

Long-term, low-level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness. been replicated. Higher concentrations of 700-800 ppm tend to be fatal.

H_2S Relative Density (Air =1) = 1.188

Typical H_2S Detection head location would be in would be at the lowest level available.

EH40 workplace exposure recommended exposure limits :-

Long term exposure limit (8hour TWA reference period) 5 ppm

Short term exposure limit (15 min TWA reference period) 10 ppm

General Details

Type:	GMT—Hydrogen Sulphide
Part number	59515—0-100 parts per million (PPM)
Certification	Ex II 1 G EEx ia IIC T4 Certificate BAS00ATEX1042X
Ingress Protection	IP 54 (sensor electronics)
Sensor Type	Electrochemical
Mounting Thread	20mm. 1.5mm Pitch
Supply Voltage	24 Vdc ±10 %
Connections	Red – N.C. Yellow – Signal/supply. Blue – 0v. Green – Screen
Output	4~20 mA Linear 2/3 wire
Material	Stainless Steel EN316
Weight	166gms.
Dimensions:	Body 48mm. long x 42mm. dia.
EMC Regulations	EC Directive 89/336/EEC
Low voltage	EC Directive 73/23/EEC

CE

Effects of Hydrogen Sulphide

0.0047 ppm is the recognition threshold, the concentration at which 50% of humans can detect the characteristic odor of hydrogen sulfide, normally described as resembling "a rotten egg".
Less than **10 ppm** has an exposure limit of 8 hours per day.
10-20 ppm is the borderline concentration for eye irritation.
50-100 ppm leads to eye damage.
At **150-250 ppm** the olfactory nerve is paralyzed after a few inhalations, and the sense of smell disappears, often together with awareness of danger,
320-530 ppm leads to pulmonary edema with the possibility of death.
530-1000 ppm causes strong stimulation of the central nervous system and rapid breathing, leading to loss of breathing
800 ppm is the lethal concentration for 50% of humans for 5 minutes exposure.
Concentrations over **1000 ppm** cause immediate collapse with loss of breathing, even after inhalation of a single breath.

Compatible GMI control panels

SPGA

ACTIVE-8

4500 GAS ALARM

ACTIVE-80

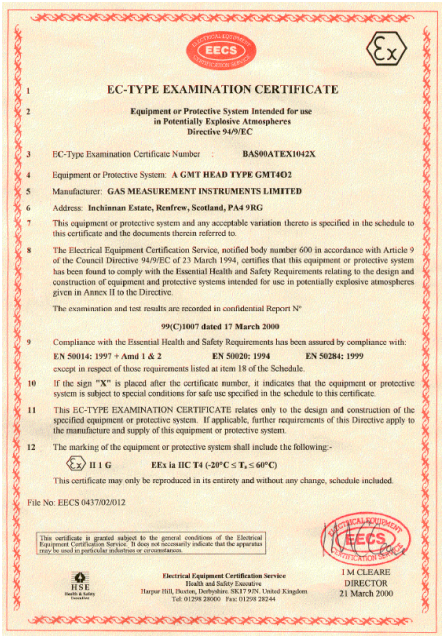
Replacement Sensor	GMI Part number 59318
Calibration Cap Assembly	GMI Part number 59614

Sensor Specification

Nominal Range	0-100 ppm
Maximum Overload	500 ppm
Expected Operating Life	24 Months in Air at STP
Temperature Range	-10ºC. to +40ºC.
Pressure Range	Atmospheric ±10 %
Response Time	Typically 35 seconds to T90 Typically 10 seconds to T50
Relative Humidity Range	15 to 90% non-condensing
Repeatability	±2% of reading
Zero stability	±1% F.S.D.
Output Linearity	Linear
Warranty Life	12 Months from date of despatch
Calibration frequency	6 months recommended

BSI UKAS QUALITY MANAGEMENT 003
Q 09760

CoGDEM
The Council of Gas Detection and Environmental Monitoring



EC-TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 EC-Type Examination Certificate Number : BAS00ATEX1042X

4 Equipment or Protective System: A GMT HEAD TYPE GMT4O2

5 Manufacturer: GAS MEASUREMENT INSTRUMENTS LIMITED

6 Address: Inchinnan Estate, Renfrew, Scotland, PA4 9RG

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N° 99(C)1007 dated 17 March 2000

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 50014: 1997 + Amd 1 & 2 EN 50020: 1994 EN 50284: 1999 except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following:-

Ex II 1 G EEx ia IIC T4 (-20°C ≤ T_a ≤ 60°C)

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0437/02/012

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.

Electrical Equipment Certification Service, Health and Safety Executive, Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom. Tel: 01298 28000 Fax: 01298 28244

I M CLEARE DIRECTOR 21 March 2000

As a BS EN ISO 9001:2008 approved company, GMI Ltd's quality assurance programmes demand the continuous assessment and improvement of all GMI products. Information in this leaflet could thus change without notification and does not constitute a product specification. Please contact GMI or their representative if you require more details.

GAS MEASUREMENT INSTRUMENTS LTD

Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.

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