GMT Toxic Gas Detection Head

Hydrogen (H_2)

- **UTILISES WELL PROVEN AND RELIABLE SENSOR TECHNOLOGY**
- **SUITABLE FOR HAZARDOUS AREA USE (WITH SUITABLE ZENER BARRIER) ⟨Ex⟩ 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 (H_2)

Hydrogen gas is highly flammable and will burn in air at a very wide range of concentrations between 4% and 75% by volume. Hydrogen / oxygen mixtures are explosive across a wide range of proportions. Its auto ignition temperature, the temperature at which it ignites spontaneously in air, is 560 °C .
H_2 reacts with every oxidizing element. Hydrogen can react spontaneously and violently at room temperature with chlorine and fluorine to form the corresponding halides: hydrogen chloride and hydrogen fluoride.

Large quantities of H_2 are needed in the petroleum and chemical industries.
The largest application of H_2 is for the processing ("upgrading") of fossil fuels, and in the production of ammonia. The key consumers of H_2 in the petrochemical plant include hydrodealkylation, hydrodesulfurization, and hydro cracking.

H_2 has several other important uses. H_2 is used as a hydrogenating agent, particularly in increasing the level of saturation of unsaturated fats and oils (found in items such as margarine), and in the production of methanol. It is similarly the source of hydrogen in the manufacture of hydrochloric acid. Apart from its use as a reactant, H_2 has wide applications in physics and engineering. It is used as a shielding gas in welding methods such as atomic hydrogen welding. H_2 is used as the rotor coolant in electrical generators at power stations, because it has the highest thermal conductivity of any gas. H_2 is lighter than air, having a little more than 1/15th of the density of air.

In other applications, hydrogen is used pure or mixed with nitrogen (sometimes called forming gas) as a tracer gas for minute leak detection.
Applications can also be found in the automotive, chemical, power generation, aerospace, and telecommunications industries. Hydrogen is an authorized food additive (E 949) that allows food package leak testing among other anti-oxidizing properties.

H_2 Relative Density (Air =1)= 0.069

Typical H_2 Detection head location would be at the highest level available.

General Details

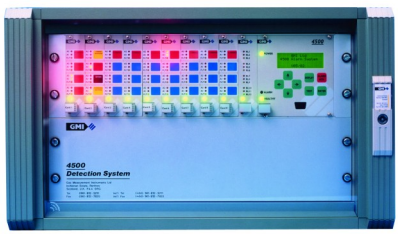
Type:	GMT—Hydrogen
Part number	59525—0-1000 parts per million (PPM)
Certification	II 1 G EEx ia IIC T4 Certificate BAS00ATEX1042X
Ingress Protection	IP 54 (sensor electronics)
Sensor Type	Electrochemical
Mounting Thread	20mm. 1.5mm Pitch
Supply Voltage	24 Vdc ±10 %
Connections	Red – N.C. Yellow – Signal/supply. 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

Compatible GMI control panels

SPGA

ACTIVE-8



4500 GAS ALARM

ACTIVE-80

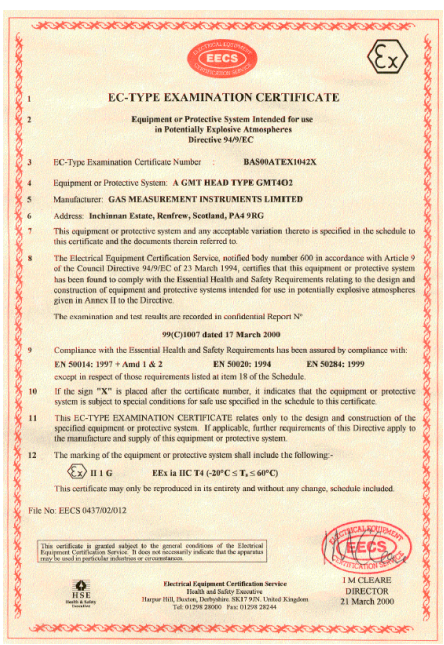
Replacement Sensor	GMI Part number 59583
Calibration Cap Assembly	GMI Part number 59614

Sensor Specification

Nominal Range	0-1000 ppm
Maximum Overload	2000 ppm
Expected Operating Life	24 Months in Air at STP
Temperature Range	+10ºC. to +40ºC.
Pressure Range	Atmospheric ±10 %
Response Time	Typically 45 seconds to T90 Typically 20 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 003 Q 09760

CoGDEM The Council of Gas Detection and Environmental Monitoring


EECS

EC-TYPE EXAMINATION CERTIFICATE

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

EC-Type Examination Certificate Number : BAS00ATEX1042X

Equipment or Protective System: A GMT HEAD TYPE GMT4O2

Manufacturer: GAS MEASUREMENT INSTRUMENTS LIMITED

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

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

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

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.

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.

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.

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

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.

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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