GMT Toxic Gas Detection Head

OXYGEN (O_2)

- **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 Oxygen (O_2)

One of the greatest dangers of an oxygen-deficient atmosphere is that you are not aware of it immediately. In a matter of minutes your judgment and muscular coordination are affected by lack of oxygen, including your sense of balance and direction, mental awareness, hearing, and touch. Long-term exposure to an oxygen-deficient atmosphere will lead to unconsciousness and eventually death. Concentration levels and symptoms are shown in table over page. Conditions that could cause O2 deficiency include :-

Displacement- Gases that are heavier than oxygen will over time settle at the bottom of the space, thereby displacing the oxygen within the space. These gases can include residual contents, chemical by-products or other gases entering the space. Below ground spaces are of particular concern in this respect.

Dilution- The introduction of other gases into an enclosed space can dilute the oxygen levels. This can occur through venting from conduits, leaking cylinders, improper fitting connections, and the presence of gases used to purge the space. E.g. A faulty valve on a nitrogen purge line causing nitrogen to leak into an enclosed room will cause the Oxygen levels to fall. Operators could enter the room and unknowingly be overcome.

O_2 Relative Density (Air =1) = 1.105

Typical O_2 Detection head location would be in the "breathing zone" (approx 1.5 meters)

Typical areas of concern would include :- confined spaces, underground vaults, Waste treatment, Lab rooms and enclosed compressor rooms.

GMI recommended Alarm set points :-

A1 19 % Volume

A2 17 % Volume

General Details

Type:	GMT—Oxygen
Part number	59570—0-25 % Volume
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 O_2 DEFICIENCY

% By Volume	Effects and symptoms
19.5	Minimum permissible Oxygen Level
15 to 19	Decreased ability to work strenuously. May induce early symptoms in persons with coronary, pulmonary, or circulatory problems.
12 to 15	Respiration increases in exertion, Pulse up, impaired co-ordination, perception, judgement.
10 to 12	Respiration further increase in rate and depth, Poor judgement, Lips turn blue.
8 to 10	Mental failure, fainting, unconsciousness, ashen face, blueness of lips, nausea and vomiting.
6 to 8	8 minutes 100% fatal, 6 minutes 50% fatal, 4 to 5 minutes, recovery with treatment
<6	Coma in 40 seconds, convulsions, respiration ceases, death

Compatible GMI control panels


SPGA


ACTIVE-8


4500 GAS ALARM

ACTIVE-80

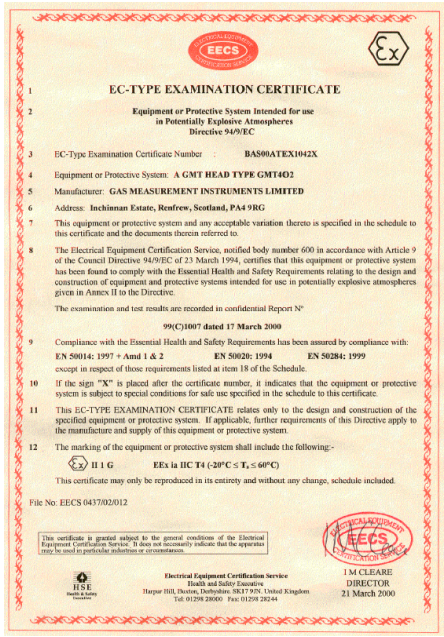
Replacement Sensor	GMI Part number 65015
Calibration Cap Assembly	GMI Part number 59614

Sensor Specification

Nominal Range	0-25 % Volume
Maximum Overload	30 % Volume
Expected Operating Life	24 Months in Air at STP
Temperature Range	-10ºC. to +50ºC.
Pressure Range	Atmospheric ±10 %
Response Time	Typically 12 seconds to T90 Typically 8 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


EECS

EC-TYPE EXAMINATION CERTIFICATE

2 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.

EECS

HSE

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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