



# VQ101 Hydrogen Sulfide Gas Sensor

## INTRODUCTION

This device is a solid-state unit for the detection of hazardous levels of hydrogen sulfide in air. It consists of two elements; a detector and a compensator that is used to minimise the effects of temperature. The device has a life of many years, provided that it is not abused. It is intended to be run in the recommended operating circuit shown below.

## OUTPUT CHARACTERISTICS

In clean air, there is a steady voltage of 600 mV nominal at the output terminals. When hydrogen sulfide is present, this voltage increases and the response at any concentration is defined as the increase in output voltage from the output in clean air.

The change in output is non-linear with respect to the gas concentration, as shown in the graph on page 2. The concentration is obtained thus:

$$y = \frac{\text{Output to } x \text{ ppm H}_2\text{S} - \text{Output to air}}{\text{Output to 10 ppm H}_2\text{S} - \text{Output to air}}$$

Look up the value of y on the Y-axis of the graph and read off the concentration on the X-axis.

Further information can be obtained from e2v technologies.

## GENERAL DATA

### Electrical

The information given below relates to the device operating in the recommended operating circuit shown below.

Operation . . . . .	continuous
Stabilisation time (see note) . . . . .	1 hour
Power supply . . . . .	6.5 ± 1.5 V
Sensor current consumption . . . . .	400 mA max
Output in clean air . . . . .	500 to 700 mV
Response in 10 ppm hydrogen sulfide . . . . .	90 to 225 mV
Deviation of response:	
at 5 ppm hydrogen sulfide . . . . .	± 25 mV
at 20 ppm hydrogen sulfide . . . . .	± 25 mV

### Mechanical

Outline . . . . . see page 2

## MOUNTING

The beads of this device run at high temperatures. If the device is to be operated in an atmosphere where there is any likelihood of flammable vapours being present, it must be mounted behind a suitable flame arrestor.

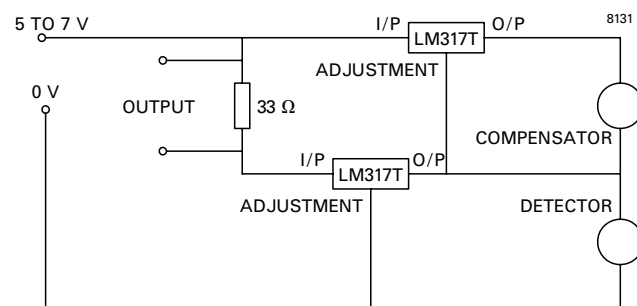
## MARKING

Each element carries a serial number written on the side of the can. The serial number is written in red on the detector and black on the compensator.

## NOTE

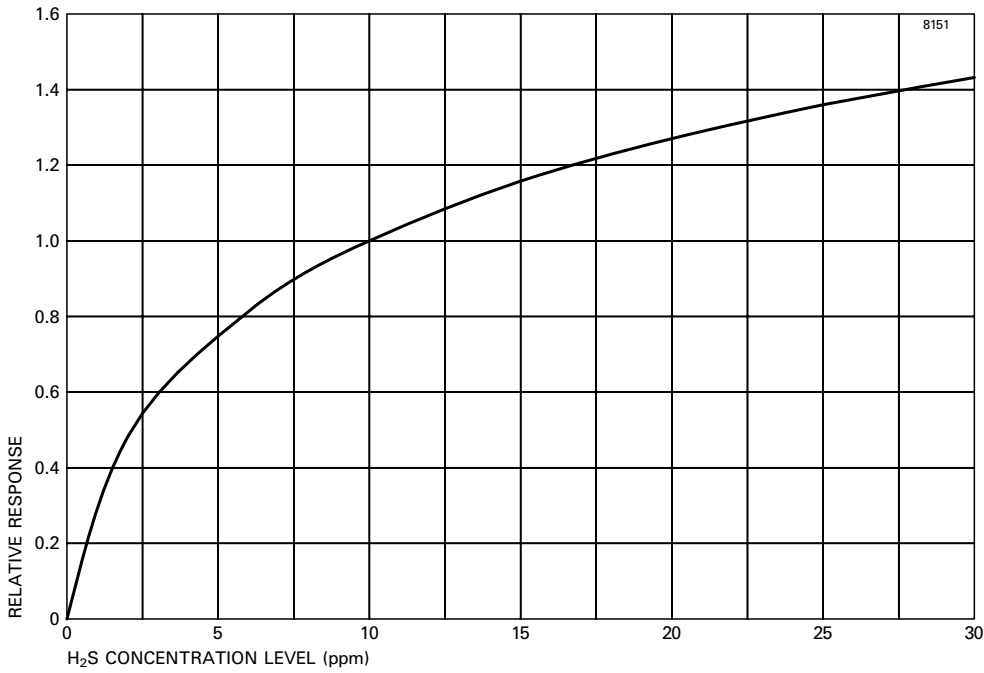
If the device is stored or not powered up for any length of time in room air, stabilisation will take longer as the elements give up absorbed moisture.

## RECOMMENDED OPERATING CIRCUIT

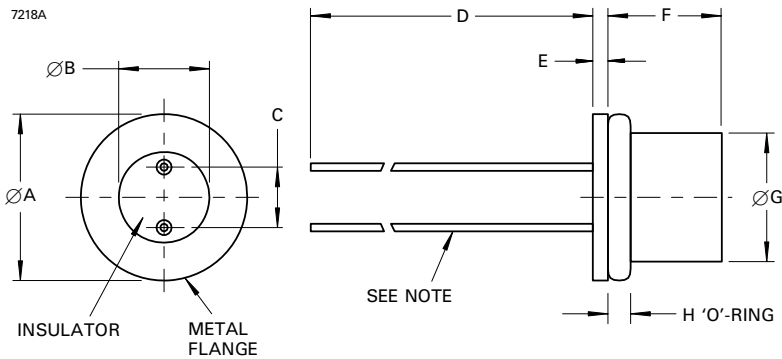


**Note:** Voltage across compensator and voltage across detector ≈ 1.25 V.

**GRAPH OF TYPICAL RELATIVE RESPONSE TO HYDROGEN SULFIDE LEVEL  
(Calibrated at 10 ppm)**



**OUTLINE (All dimensions without limits are nominal)**

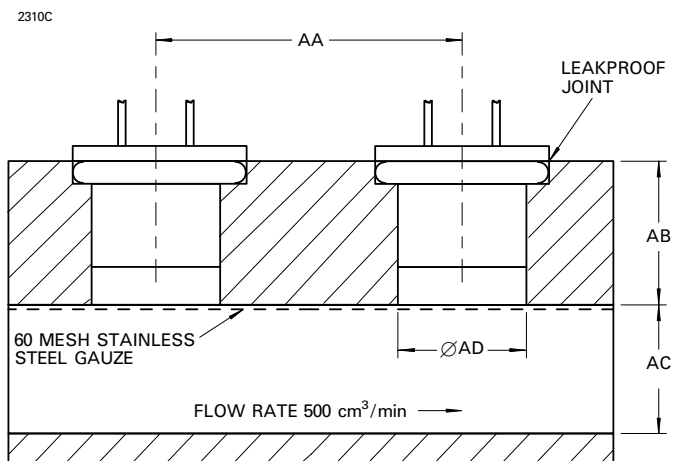


Ref	Millimetres
A	11.05 ± 0.25
B	6.10 ± 0.25
C	3.56 ± 0.13
D	40.0
E	1.0
F	5.84 ± 0.51
G	8.2 max
H	1.5

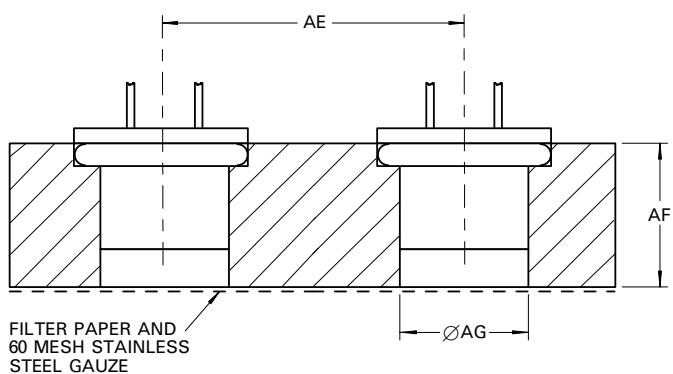
**Outline Note**

The wire comprises a single strand, 0.5 mm across.

## RECOMMENDED MOUNTING ARRANGEMENTS



Ref	Millimetres
AA	19.05 max
AB	9.53 ± 0.13
AC	8.33 ± 0.13
AD	8.2 min
AE	19.05 max
AF	9.53 ± 0.13
AG	8.2 min



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