

● KGS 702



■ Enhanced Features

- Significantly increased HMDS(silicone) resistance
- Significantly increased H<sub>2</sub>S inhibition resistance
- Excellent shock resistance and reduced orientation effects
- Reduced response time and wake up times

■ Specifications

|                               |                                |
|-------------------------------|--------------------------------|
| Gases Detected                | Most combustible gases         |
| Range                         | 0 ~ 100% LEL                   |
| Operating Voltage             | 3.3 V                          |
| Current                       | 74 ± 6 mA                      |
| Output Sensitivity            | 30 ± 6 mV / % methane          |
| Zero Offset Voltage           | -20 ~ 20 mV (23 ± 2°C, 60% RH) |
| Linear to                     | 3% methane                     |
| T <sub>90</sub> Response Time | < 10 seconds (methane)         |
| Long Term Sensitivity Drift   | < 5% signal / month            |
| Long Term Zero Drift          | < 5% LEL (methane)/ month      |
| Warranty Period               | 1 year from date of despatch   |

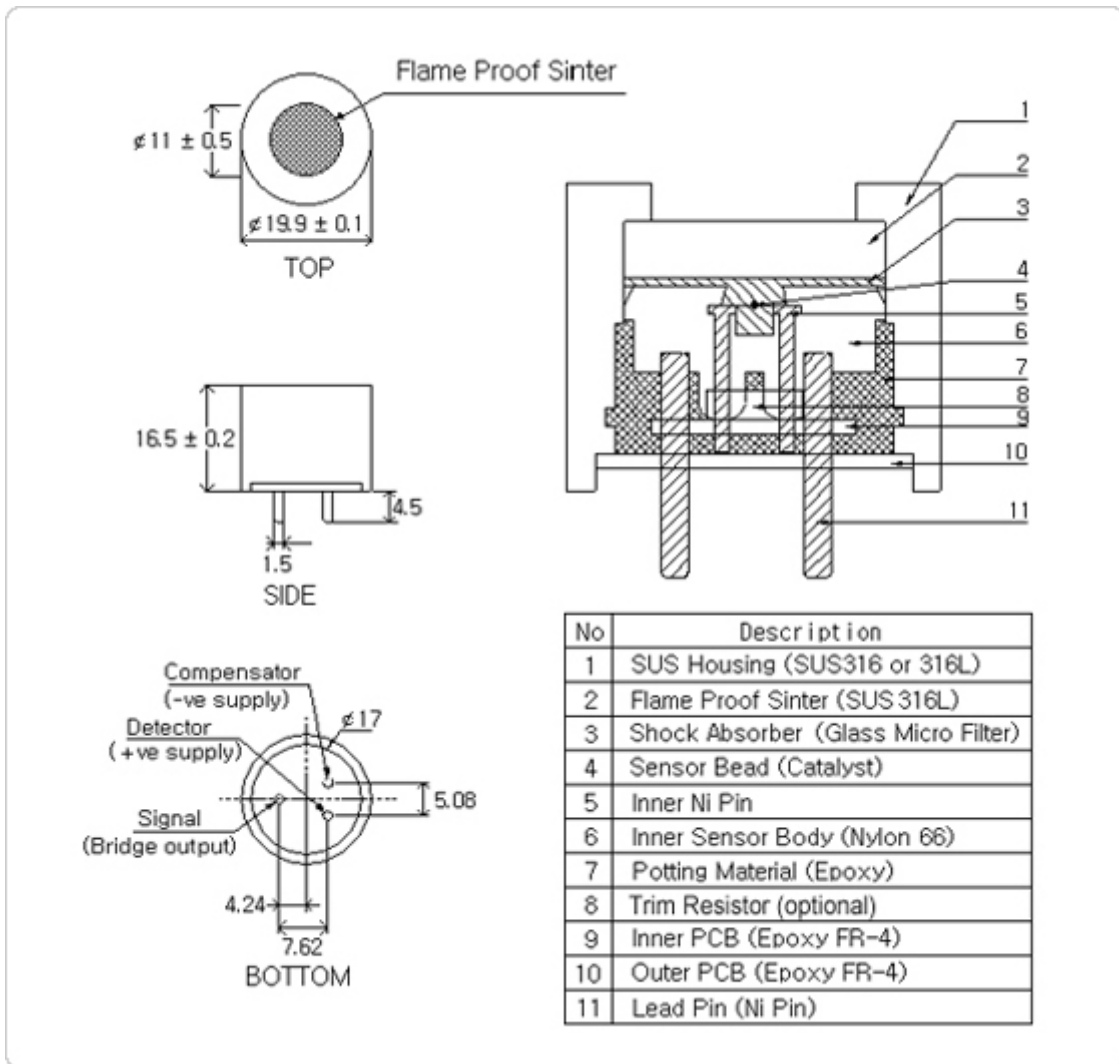
\* Flow rate of 300ml/min. Conditions at 23 ± 2 °C, 60% RH, and 1 atm unless otherwise noted.

■ Relative Sensitivity

| Gas        | Relative Sensitivity |
|------------|----------------------|
| Methane    | 100                  |
| Propane    | 70                   |
| Iso-butane | 65                   |
| Pentane    | 60                   |

\* The results are intended for guidance only at the same %LEL concentration.

■ Structure and Materials



■ Product Approval

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|  | <p>Approval Body : Underwriters Laboratories Inc.<br/>           Test Standard : UL 913<br/>           Product Categories : Class 1, Division 1, Groups A, B, C, D<br/>           Certificate Number : E248963</p>                                       |
|  | <p>Approval Body : TÜV Product Service TÜV SÜD Group<br/>           Test Standard : EN-60079-0:2004 EN60079-1:2004<br/>           Product Categories :  II 2 G Ex d IIC T6 -40°C ≤ Ta ≤ 55°C<br/>           Certificate Number : TPS 05 ATEX 1 137 U</p> |
|  | <p>Test Standard : IEC 60079-0:2004, Edition 4.0<br/>           IEC 60079-1:2001, Edition 4<br/>           Product Categories : Ex d IIC T6<br/>           Certificate No. : IECEx TUVSPS 07.0001U</p>   |
|  | <p>Approval Body : Canadian Standards Association<br/>           Test Standard : CAN/CSA-C22.2 No. 0-M91<br/>           CSA Std C22.2 No. 30-M1986<br/>           File Number : 237868</p>   |

## ■ Instructions Specific to Hazardous Area Installation (reference European ATEX Directive 94/9/EC, Annex II, 1.0.6)

Instructions for equipment covered by certificate number

TPS 05 ATEX 1 137 U

1. With apparatus group IIA, IIB, and IIC, the equipment may be used with flammable gases and vapors with temperature classifications T1, T2, T3, T4, T5 and T6.
2. The equipment shall be used in ambient temperatures of  $-40^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$ .
3. The equipment is not considered as a safety related device (as referred to by Directive 94/9/EC Annex II, clause 1.5).
4. Properly trained personnel shall install the equipment in accordance with the applicable code of practice (e.g. EN 60079-14).
5. Properly trained personnel shall carry out inspection and maintenance in accordance with the applicable code of practice (e.g. EN 60079-17).
6. Properly trained personnel shall carry out repair of this equipment in accordance with the applicable code of practice (e.g. EN 60079-19).
7. Sensor pins are designed to be connected to a gas detector which shall provide an intrinsically safe supply and having a maximum output power ( $P_{\text{max}}$ ) not exceeding 0.5W.
8. The confirmation of adequate sensor performance is recommended to be carried out regularly by a specified sensor calibration procedure. The calibration shall be done as often as needed according to surrounding environment where the sensor is intended to operate.
9. The following materials are used for the construction of this equipment.

Housing Material: Stainless steel 316 or 316L

Sinter Material: Stainless steel 316L

Maximum pore size of  $70\mu\text{m}$

Density of  $4.0$  to  $5.0\text{g}/\text{cm}^3$

Cement Material: Epoxy resin

Maximum functional temperature of  $150^{\circ}\text{C}$

Where there is a risk of the equipment exposed to harmful substances (e.g. acidic liquids or gases that may damage metals, or solvents that may affect polymeric materials), the user is responsible for taking the suitable precautions (e.g. regular checks as part of routine inspections or establishing from the material's data sheet that it is resistance to specific chemicals). The precautions are to prevent the equipment from being adversely affected and to ensure that the type of protection shall be maintained.

10. The following factors are identified to have a harmful effect on catalytic elements as used in the gas sensors, KGS 701, KGS 702 and KGS 703.

Poisoning: Some compounds will decompose on the catalyst and form a solid barrier over the catalyst surface. This action is cumulative and prolonged exposure will result in an irreversible decrease in sensitivity. The most common of these substances are: lead or sulphur containing compounds; silicones; phosphates.

Inhibition: Certain other compounds, especially hydrogen sulphide and halogenated hydrocarbons, are absorbed or form compounds that are absorbed by the catalyst. The resultant loss of sensitivity is temporary and in most cases a sensor will recover after a period of operation in clean air.

If the presence of poisoning or inhibition is suspected, adequate protective action for the sensor should be taken.

11. The Certification marking is shown below.

|  |  |   |
|--|--|---|
|                         | <b>Combustible Gas Sensor</b><br><b>KGS 702</b>  | TPS 05 ATEX 1 137 U<br>EEx d IIC T6 -40 ≤ Ta ≤ 55 |
| Korea New Ceramics Co., Ltd.<br>70-3 Sosabon 2-dong, Sosa-gu, Bucheon-si,<br>Gyeonggi-do, 422-807, Korea |  0123  II2G<br>S/N: xxxxxxxx |   |