

Product Data Sheet

Product Datasheet

P90E Combustible Gas Sensor

Document Purpose

The purpose of this document is to present the performance specification of the P90E combustible gas sensor.

This document should be used in conjunction with the Product Safety Datasheet (PSDS 21).

The data provided in this document are valid at 20°C, 50% RH and 1013 mBar for 3 months from the date of sensor manufacture.

Output signal can drift below the lower limit over time.

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Key Features & Benefits:

- Compact, open can design
- High poison resistance
- Superior shock and orientation insensitivity

Performance Characteristics

MEASUREMENT

Operating Principle	Catalytic Oxidation
Gases Detected	Most combustible gases and vapours
Range	0-100% LEL
Sensitivity*	28 ± 5 mV/%methane
T90 Response Time*	<20 seconds (methane)
Poison Resistance	Increased silicone and chlorine poison resistance
Linearity	Linear up to 3% methane

ELECTRICAL

Operating Voltage	3.50 ± 0.02 VDC
Detector Operating Current	75 mA in recommended circuit
Resolution	1% LEL

MECHANICAL

Casing Material	Stainless steel 304
Pin Material	KOVAR alloy
Orientation Sensitivity	None

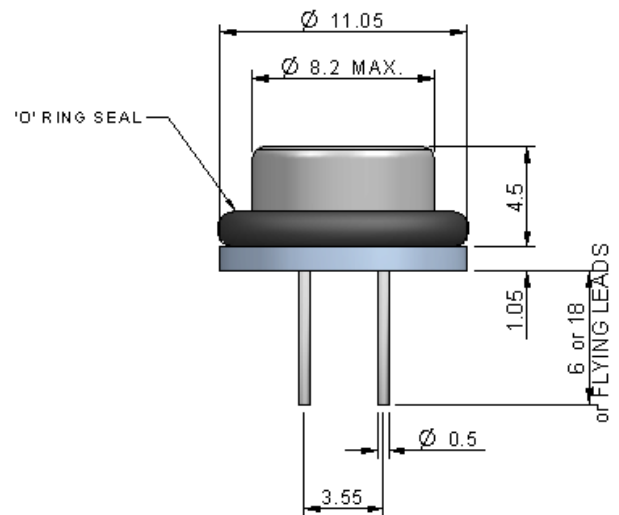
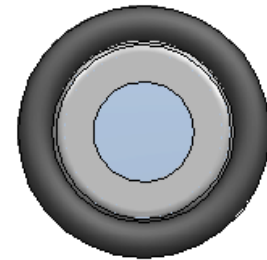
ENVIRONMENTAL

Operating Temperature Range	-5°C to +60°C
Operating Pressure Range	1 atm ± 10%
Operating Humidity Range	0-100% RH non-condensing

LIFETIME

Long Term Span Drift*	<5% signal/month (measured over 6 months)
Long Term Zero Drift*	<5% LEL _{methane} /month (measured over 6 months)
Recommended Storage Temp	0°C to 20°C
Shelf life	6 months in sealed container
Expected Operating Life	2 years in clean air
Warranty	12 months from date of

Product Dimensions



All dimensions in mm
All tolerances ±0.15 mm unless otherwise stated

* Specifications are valid at 20°C, 50% RH and 1013 mBar, using City Technology recommended circuitry. Performance characteristics outline the performance of sensors supplied within the first 3 months. Output signal can drift below the lower limit over time.

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Relative Sensitivity

IMPORTANT NOTE

The relative response data shown below does not form part of the product specification and is supplied for guidance only. For the most accurate measurements, an instrument should be calibrated using the gas under investigation.

The table below shows the variation in response of the CiTipeL on exposure to a range of gases and vapours at the same %LEL concentration. The figures are experimentally derived and expressed relative to the methane signal (=100). Testing was performed using 2.5%vol. CH₄ (50%LEL CH₄ based on LEL values from the now obsolete EN50054).

Relative response data are shown in the table below, based on the LEL values stated in EN 50054 (now obsolete) and EN60079-20-1:2010.

Gas / Vapour	Relative Sensitivity **	
	EN 50054 (obsolete)	EN 60079-20-1:2010
Methane	100	100
Propane	60	56
n-Butane	61	52
n-Pentane	52	59
n-Hexane	45	56
n-Heptane	44	55
n-Octane	39	31
Methanol	82	77
Ethanol	70	74
Iso-propyl alcohol	56	63
Acetylene	80	83
Carbon monoxide	106	110
Acetone	62	68
Methyl ethyl ketone	50	56
Toluene	43	42
Ethyl acetate	53	66
Hydrogen	106	121
Ammonia ***	135	153
Cyclohexane	54	56
Unleaded Petrol	55	63
Ethylene	84	80

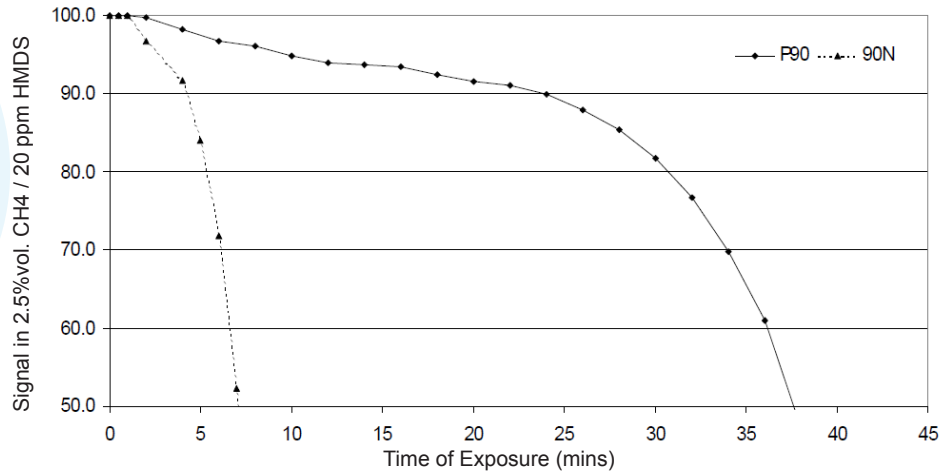
** Each sensitivity has been rounded to the nearest 1%
 *** T₉₀ for ammonia has been extended. Contact City Technology for further details.

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IMPORTANT NOTE

The accelerated life tests / poison resistance data shown below does not form part of the product specification and is supplied for guidance only.

Accelerated Life Tests - 90N vs. P90 HMDS Poison Resistance



SAFETY NOTE

This sensor is designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used, are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check) before each use of the sensor and/or instrument. Failure to carry out such tests may jeopardize the safety of people and property.

Every effort has been made to ensure the accuracy of this document at the time of printing. In accordance with the company's policy of continued product improvement City Technology Limited reserves the right to make product changes without notice. The products are always subject to a programme of improvement and testing which may result in some changes in the characteristics quoted. As the products may be used by the client in circumstances beyond the knowledge and control of City Technology Limited, we cannot give any warranty as to the relevance of these particulars to an application. It is the clients' responsibility to carry out the necessary tests to determine the usefulness of the products and to ensure their safety of operation in a particular application.