

Product Selection Guide



Foreword

City Technology leads the global market in the design and manufacture of gas sensors used in personal and fixed life safety systems and emissions monitoring. From its small beginnings on London's City University campus in 1977, City Technology has grown into an international business employing over 400 staff at facilities in the UK, Germany and China.

City Technology is part of Honeywell - an international company employing over 130,000 people around the world, with a multi-billion dollar annual turnover and a number of technology businesses. As Honeywell's leading brand for gas sensors, City Technology supplies the widest range of gas sensors on the market, with more than 300 products detecting 28 different gases in a range of applications, including the Sensoric range for specialist gas detection.

Today over 50 million people trust City sensors to protect them and keep them safe at home and at work – a testament to the company's single-minded commitment to improving the quality of gas detection through innovative technology.

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With more than 300 products detecting 28 different gases, City Technology provides the widest range of gas sensors in the market today. Sensors are available in a number of different formats to suit specific applications. The main product ranges are as follows:

3 Series

City Technology's original toxic gas sensor product range is designed for use in general industrial safety applications, flue gas emissions monitoring, ambient air monitoring and medical gas applications. A wide variety of sensors are available in this format, many with 4-20 mA or mV transmitter boards.

4 Series

The 4-Series range is the industry standard for use in portable gas detectors. The range includes sensors which detect oxygen and numerous toxic gases, along with an infrared version for carbon dioxide and hydrocarbon and fully certified pellistors for combustible gas detection.

5 Series

City Technology's range of premium gas sensors has been designed to ensure optimal performance within the harsh environments of flue gas analysers and combustion efficiency monitors. Sensors are available for oxygen, carbon monoxide, nitric oxide, nitrogen dioxide and sulfur dioxide, along with a hydrogen compensated carbon monoxide sensor.

7 Series

The 7-Series range is suited to general gas detection applications including oxygen and numerous toxic gases. Sensors are suitable for use in portable or fixed gas detectors and medical gas applications.

MICRO

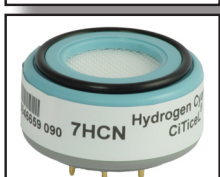
MICROceL® and MICROpeL® are City Technology's smallest, most compact sensors. The range includes oxygen, carbon monoxide, hydrogen sulfide and fully certified combustible gas sensors.

ECOSURE

The ECOSURE® range is designed for high quality CO detection in residential or commercial environments.

Sensoric

The Sensoric range of electrochemical toxic gas sensors from City Technology has gained worldwide recognition for excellent performance, particularly when detecting exotic toxic gases. With the ability to detect more than 20 different gases, Sensoric has the widest exotic toxic gas sensor offering in the market. Common applications include wafer fabrication within the global semiconductor industry, food production and refrigeration, mining and metallurgy. Sensoric sensors are available in industry standard 4 and 7 series formats as well as the Sensoric range-specific mini and classic series. All Sensoric sensors can be supplied with 4-20 mA transmitter boards.



AutoNO® and AutoO2®

The automotive range of sensors is designed for use for Nitric Oxide and Oxygen measurement in exhaust gas analyser equipment.

CiTiceL®

The CiTiceL® range of electrochemical sensors for the measurement of toxic gas and oxygen is available in a variety of formats, for both fixed and portable applications.

CiTipeL®

The CiTipeL® range of pellistors for combustible gas detection is available in a variety of formats, for both fixed and portable applications.

ECOSURE®

The ECOSURE carbon monoxide sensors are widely used in domestic and commercial CO alarms. Using automated manufacturing, these sensors are designed for long-life and unattended operation in applications such as domestic CO alarms, fire detection and CO monitoring in underground car parks.

IRceL®

The IRceL® sensors are miniature infra-red gas sensors which use the Non-Dispersive Infra-Red (NDIR) method for measuring gas concentration. IRceL® utilises a novel non-focusing optical design and technology to give high performance within the small size of the industry standard 4-series envelope.

MediceL®

The MediceL® range of sensors is designed specifically for use in medical applications. Sensors are available for oxygen, nitric oxide and hydrogen measurement.

MICROceL®

The revolutionary MICROceL® sensors form the smallest, most compact range of electrochemical gas sensors available. The range includes oxygen, carbon monoxide & hydrogen sulfide sensors.

IMES®

IMES® is the trademark for the injection moulded elastomer seal for the current collector on the toxic MICROceL® products.

MICROpeL®

The MICROpeL® range forms the smallest, most compact range of fully certified combustible gas sensors available.

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Filter	Product Name	Output	Measurement Range	Maximum Overload	Expected Operating Life	Number of Electrodes
Ammonia (NH ₃)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	NH3 3E 100	90 ± 40 nA/ppm	0-100 ppm	-	> 18 months in air	3
						NH3 3E 100 SE	130 ± 30 nA/ppm	0-100 ppm	-	> 2 years in air	3
						NH3 3E 500 SE	35 ± 15 nA/ppm	0-500 ppm	-	> 2 years in air	3
						NH3 3E 1000	6 ± 3 nA/ppm	0-1000 ppm	-	> 18 months in air	3
						NH3 3E 1000 SE	8 ± 4 nA/ppm	0-1000 ppm	-	> 2 years in air	3
						NH3 3E 5000 SE	4 ± 2 nA/ppm	0-5000 ppm	-	> 2 years in air	3
Arsine (AsH ₃)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	ASH3 3E 1 LT	1.4 ± 0.45 µA/ppm	0-1 ppm	20 ppm	2 years in air	3
					H ₂ S filter	ASH3 3E 1 F LT	1.4 ± 0.45 µA/ppm	0-1 ppm	20 ppm	2 years in air	3
Carbon Dioxide (CO ₂)	Infra-Red	Industrial Safety	Portable	4 Series	None	IRceL CO2	See Technical Literature	0-5%vol	-	> 5 years	-
Carbon Monoxide and Hydrogen Sulfide (CO / H ₂ S)	Electrochemical	Industrial Safety	Portable	4 Series	To remove H ₂ S on the CO channel	4COSH	80 ± 30 nA/ppm CO 775 ± 275 nA/ppm H ₂ S	0-500 ppm CO 0-200 ppm H ₂ S	1500 ppm CO 500 ppm H ₂ S	3 years in air	4
Chlorine (Cl ₂)	Electrochemical	Industrial Safety	Portable	4 Series	None	4CL	0.6 ± 0.15 µA/ppm	0-10 ppm	100 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7CLH	1 ± 0.25 µA/ppm	0-20 ppm	250 ppm	2 years in air	3
				Sensoric	None	CL2 3E 10	0.45 ± 0.2 µA/ppm	0-10 ppm	-	> 2 years in air	3
						CL2 3E 50	0.45 ± 0.2 µA/ppm	0-50 ppm	-	> 2 years in air	3
			Fixed	3 Series	None	3CLH	1 ± 0.25 µA/ppm	0-20 ppm	250 ppm	2 years in air	3
						3MCLH	1 mV/ppm 10 mV/ppm	0-100 ppm	-	2 years in air	-
						T3CLH	4-20 mA	0-5 ppm	-	2 years in air	-
								0-10 ppm	-		
								0-20 ppm	-		
								0-30 ppm	-		
								0-50 ppm	-		
								0-100 ppm	-		
								0-200 ppm	-		
						EZT3CLH	4-20 mA	0-10 ppm 0-20 ppm 0-30 ppm 0-50 ppm 0-100 ppm	- - - - -	2 years in air	-
Chlorine Dioxide (ClO ₂)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	CLO2 3E 1 O	0.65 ± 0.15 µA/ppm	0-1 ppm	-	> 1 year in air	3

All Sensoric sensors are available with 4-20mA PCB on request

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Filter	Product Name	Output	Measurement Range	Maximum Overload	Expected Operating Life	Number of Electrodes				
Carbon Monoxide (CO)	Electrochemical	Industrial Safety	Portable	Micro	To remove SO ₂ & H ₂ S	MICROcel CF	45 ± 10 nA/ppm	0-500 ppm	1500 ppm	2 years in air	3				
				4 Series	To remove SO ₂ & H ₂ S	2CF3	50 ± 20 nA/ppm	0-500 ppm	1000 ppm	2 years in air	2				
						4CF+	70 ± 15 nA/ppm	0-500 ppm	1500 ppm	2 years in air	3				
						4CM	70 ± 15 nA/ppm	0-2000 ppm	-	2 years in air	3				
					To remove hydrocarbons	4LXH	200 ± 65 nA/ppm	0-200 ppm	300 ppm	2 years in air	2				
			Portable / Fixed	7 Series	None	7E	0.10 ± 0.02 µA/ppm	0-1000 ppm	2000 ppm	3 years in air	3				
						A7E	100 ± 20 µA/ppm	0-1000 ppm	2000 ppm	3 years in air	4 (Note 2)				
					To remove SO _x /NO _x & H ₂ S	7EF	0.10 ± 0.02 µA/ppm	0-1000 ppm	2000 ppm	3 years in air	3				
						7EFF	0.10 ± 0.02 µA/ppm	0-1000 ppm	2000 ppm	3 years in air	3				
						A7EF	100 ± 20 µA/ppm	0-1000 ppm	2000 ppm	3 years in air	4 (Note 2)				
				Sensoric	None	CO 2E 300	30 ± 12 nA/ppm	0-300 ppm	-	> 3 years in air	2				
						CO 3E 500	70 ± 20 nA/ppm	0-500 ppm	-	> 4 years in air	3				
						CO 3E 500 S	70 ± 20 nA/ppm	0-500 ppm	-	> 2 years in air	3				
						3E	100 ± 20 µA/ppm	0-1000 ppm	2000 ppm	3 years in air	3				
			Fixed	3 Series	To remove SO _x /NO _x & H ₂ S	2EF	100 ± 20 µA/ppm	0-200 ppm	500 ppm	2 years in air	2				
						3EF	100 ± 20 µA/ppm	0-1000 ppm	2000 ppm	3 years in air	3				
						3MEF	1 mV/ppm 10 mV/ppm	0-2000 ppm	-	3 years in air	-				
						T3EF	4-20 mA	0-50 ppm 0-100 ppm 0-200 ppm 0-300 ppm 0-1000 ppm 0-2000 ppm	- - - - - -	3 years in air	-				
						EZT3EF	4-20 mA	0-50 ppm 0-100 ppm 0-200 ppm 0-300 ppm 0-500 ppm	- - - - -	3 years in air	-				
						Emissions	Portable	4 Series	To remove acid gases	4F	70 ± 15 nA/ppm	0-10000 ppm	20000 ppm	3 years in air	3
										4MF	15 ± 5 nA/ppm	0-40000 ppm	100000 ppm	3 years in air	3
							Portable / Fixed	5 Series	To remove acid gases	5F	30 ± 6 nA/ppm	0-4000 ppm	20000 ppm	3 years in air	3
										5MF	10 ± 4 nA/ppm	0-40000 ppm	100000 ppm	3 years in air	3
										A5F	75 ± 25 nA/ppm	0-2000 ppm	4000 ppm	3 years in air	4 (Note 2)
		A5F+	60 ± 20 nA/ppm	0-10000 ppm	20000 ppm					3 years in air	4 (Note 2)				
		Fixed	3 Series	None	3M		7 ± 2 nA/ppm	0-40000 ppm	100000 ppm	3 years in air	3				
					A3CO		200 ± 20 nA/ppm	0-500 ppm	1000 ppm	3 years in air	4 (Note 1)				
				To remove acid gases	3FD		30 ± 6 nA/ppm	0-4000 ppm	20000 ppm	3 years in air	3				
					3FF		30 ± 6 nA/ppm	0-4000 ppm	20000 ppm	3 years in air	3				
					3MF		7 ± 2 nA/ppm	0-40000 ppm	100000 ppm	3 years in air	3				
					A3ED		75 ± 25 nA/ppm	0-2000 ppm	4000 ppm	2 years in air	4 (Note 2)				
					A3EF	75 ± 25 nA/ppm	0-2000 ppm	4000 ppm	2 years in air	4 (Note 2)					
					A3MED	1 mV/ppm	0-4000 ppm	-	2 years in air	- (Note 2)					
					A3MEF	1 mV/ppm	0-4000 ppm	-	2 years in air	- (Note 2)					
					3MFF	0.1 mV/ppm	0-20000 ppm	-	3 years in air	-					
		T3FF	4-20 mA	0-500 ppm 0-1000 ppm 0-2000 ppm 0-3000 ppm 0-4000 ppm 0-10000 ppm 0-20000 ppm	- - - - - - -	3 years in air	-								
		EZT3FF	4-20mA	0-500 ppm 0-1000 ppm 0-2000 ppm	- - -	3 years in air	-								
		Medical	Portable / Fixed	3 Series	To remove acid gases & alcohol	A2EF	150 ± 30 nA/ppm	0-200 ppm	1000 ppm	2 years in air	3 (Note 2)				
						A3EF	75 ± 25 nA/ppm	0-2000 ppm	4000 ppm	3 years in air	4 (Note 2)				
		Domestic Safety	Portable	ECOSURE	None	ECOSURE	45 ± 15 nA/ppm	0-500 ppm	1000 ppm	> 6 years in air	2				

Note 1 : Incorporates auxillary electrode for baseline compensation
Note 2 : Incorporates auxillary electrode for hydrogen compensation

All Sensoric sensors are available with 4-20mA PCB on request

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Product Name	Measurement Range	Sensitivity	Operating Voltage	Detector Operating Current	Expected Operating Life
Combustibles	Catalysis	Industrial Safety	Portable	Micro	MICROpeL75	0-100% LEL	31 ± 5 mV/%CH ₄	3.3 VDC	78 ± 6 mA	3 years
					MICROpeL75C	0-100% LEL	31 ± 5 mV/%CH ₄	3.3 VDC	78 ± 6 mA	3 years
					MICROpeL75M	0-100% LEL	31 ± 5 mV/%CH ₄	3.3 VDC	78 ± 6 mA	3 years
				4 Series	4P50	0-100% LEL	37 ± 5 mV/%CH ₄	4.25 VDC	56 ± 6 mA	3 years
					4P75	0-100% LEL	24 ± 4 mV/%CH ₄	3.0 VDC	75 ± 7 mA	3 years
					4P90	0-100% LEL	28 ± 5 mV/%CH ₄	3.3 VDC	28 ± 5 mA	3 years
					4P50C	0-100% LEL	37 ± 5 mV/%CH ₄	4.25 VDC	56 ± 6 mA	3 years
					4P75C	0-100% LEL	24 ± 4 mV/%CH ₄	3.0 VDC	75 ± 7 mA	3 years
					4P75C T4	0-100% LEL	24 ± 4 mV/%CH ₄	3.0 VDC	75 ± 7 mA	3 years
					4P90C	0-100% LEL	28 ± 5 mV/%CH ₄	3.3 VDC	75 ± 7 mA	3 years
					4P50M	0-100% LEL	37 ± 5 mV/%CH ₄	4.25 VDC	56 ± 6 mA	3 years
					4P75M	0-100% LEL	24 ± 4 mV/%CH ₄	3.0 VDC	75 ± 7 mA	3 years
					4P90M	0-100% LEL	28 ± 5 mV/%CH ₄	3.3 VDC	75 ± 7 mA	3 years
				-	CMP200	0-100% LEL	30.5 ± 3.5 mV/%CH ₄	3.3 VDC	68 mA	3 years
					P90E	0-100% LEL	28 ± 5 mV/%CH ₄	3.5 VDC	75 mA	3 years
					200NE	0-100% LEL	14 ± 2 mV/%CH ₄	2.0 VDC	180 mA	3 years
					300PZ	0-100% LEL	13 ± 2 mV/%CH ₄	2.0 VDC	280 mA	3 years
					CAT16	0-100% LEL	> 12 mV/%CH ₄	2.7 VDC	200 mA	> 2 years
					CAT25	0-100% LEL	> 25 mV/%CH ₄	3.3 VDC	70 ± 5 mA	> 2 years
			Fixed	-	CDH300	0-100% LEL	14 ± 2 mV/%CH ₄	2.0 VDC	300 mA	3 years
	Infra-Red	Industrial Safety	Portable	4 Series	IRCEL CH4	0-5%vol	-	-	-	> 5 years

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Filter	Product Name	Output	Measurement Range	Maximum Overload	Expected Operating Life	Number of Electrodes
Diborane (B ₂ H ₆)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	B2H6 3E 1 LT	2.2 ± 0.5 µA/ppm	0-1 ppm	10 ppm	2 years in normal use	3
Ethylene Oxide (C ₂ H ₄ O)	Electrochemical	Industrial Safety	Portable	4 Series	None	4ETO	1.9 ± 0.5 µA/ppm	0-20 ppm	100 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7ETO	2.25 ± 0.65 µA/ppm	0-20 ppm	100 ppm	2 years in air	3
			Fixed	3 Series	None	3ETO	2.75 ± 0.5 µA/ppm	0-20 ppm	100 ppm	2 years in air	3
Exhaust Gases	Electrochemical	Automotive	Fixed	-	None	AO2 (for O ₂)	9-13 mV in air	0-100%vol	-	2 years in air	-
					To remove SO ₂	AO3 (for O ₂)	9-13 mV in air	0-100%vol	-	2 years in air	-
						NX1 (for NO)	50 ± 10 nA/ppm	0-5000 ppm	5000 ppm	2 years in air	-
Fluorine (F ₂)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	F2 3E 1	1.0 ± 0.3 µA/ppm	0-1 ppm	-	> 18 months in air	3
General Air Quality	Electrochemical	Environmental	Fixed	3 Series	None	A3CO (for CO)	0.2 ± 0.04 µA/ppm	0-500 ppm	1000 ppm	2 years in air	4 (Note 1)
						A3OZ (for O ₃ or NO ₂)	2.2 ± 0.5 µA/ppm	0-10 ppm	100 ppm	2 years in air	4 (Note 1)
						A3STF (for SO ₂)	0.6 ± 0.12 µA/ppm	0-10 ppm	100 ppm	2 years in air	4 (Note 1)
Hydrazine (N ₂ H ₄)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	N2H4 2E 1 LT	1.2 ± 0.3 µA/ppm	0-1 ppm	-	> 1 year in air	2
Hydrogen (H ₂)	Electrochemical	Industrial Safety	Portable	4 Series	To reduce CO levels	4HYT	15 ± 10 nA/ppm	0-1000 ppm	2000 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7HYE	3 ± 1 nA/ppm	0-10000 ppm	20000 ppm	2 years in air	3
					To reduce CO levels	7HYT	30 ± 10 nA/ppm	0-1000 ppm	2000 ppm	2 years in air	3
				Sensoric	To remove TLV levels of interfering gas	H2 3E 1%	10 ± 5 nA/ppm	0-1%vol	-	> 2 years in air	3
						H2 3E 4%	1.0 ± 0.5 nA/ppm	0-4%vol	-	> 2 years in air	3
			Fixed	3 Series	None	3HYE	3 ± 1 nA/ppm	0-10000 ppm	20000 ppm	2 years in air	3
						3MHYE	0.1 mV/ppm	0-20000 ppm	-	2 years in air	-
						T3HYE	4-20 mA	0-2%vol 0-5%vol	- -	2 years in air	-
						EZT3HYE	4-20 mA	0-2%voll	-	2 years in air	-
					To reduce CO levels	3HYT	30 ± 10 nA/ppm	0-1000 ppm	2000 ppm	2 years in air	3
						3MHYT	1 mV/ppm	0-2000 ppm	-	2 years in air	-
						T3HYT	4-20 mA	0-200 ppm 0-300 ppm 0-500 ppm 0-1000 ppm 0-2000 ppm	- - - - -	2 years in air	-
						EZT3HYT	4-20 mA	0-200 ppm 0-300 ppm 0-500 ppm 0-1000 ppm 0-2000 ppm	- - - - -	2 years in air	-
		Medical	Portable / Fixed	3 Series	To remove trace alcohol	MHYT1	30 ± 10 nA/ppm	0-1000 ppm	2000 ppm	2 years in air	3

Note 1 : Incorporates auxillary electrode for baseline compensation

All Sensoric sensors are available with 4-20mA PCB on request

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Filter	Product Name	Output	Measurement Range	Maximum Overload	Expected Operating Life	Number of Electrodes
Hydrogen Chloride / Hydrogen Bromide (HCl / HBr)	Electrochemical	Industrial Safety	Portable / Fixed	7 Series	None	7HL	0.75 ± 0.25 µA/ppm	0-50 ppm	100 ppm	2 years in air	3
				Sensoric	None	HCL/HBR 3E 30	140 ± 60 nA/ppm	0-30 ppm	-	> 2 years in air	3
			Fixed	3 Series	None	3HL	0.75 ± 0.25 µA/ppm	0-50 ppm	100 ppm	2 years in air	3
						3MHL	1 mV/ppm 10 mV/ppm	100 ppm	-	2 years in air	-
						T3HL	4-20 mA	0-10 ppm 0-20 ppm 0-50 ppm 0-100 ppm 0-200 ppm	- - - - -	2 years in air	-
						EZT3HL	4-20 mA	0-5 ppm 0-10 ppm 0-20 ppm 0-30 ppm 0-50 ppm 0-100 ppm	- - - - - -	2 years in air	-
Hydrogen Cyanide (HCN)	Electrochemical	Industrial Safety	Portable	4 Series	None	4HN	100 ± 20 nA/ppm	0-50 ppm	100 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7HCN	100 ± 20 nA/ppm	0-100 ppm	200 ppm	1 year in air	3
				Sensoric	To remove H ₂ S, SO ₂ and HCl	HCN 3E 30 F	60 ± 15 nA/ppm	0-30 ppm	-	> 18 months in air	3
			Fixed	3 Series	None	3HCN	100 ± 20 nA/ppm	0-100 ppm	200 ppm	2 years in air	3
Hydrogen Fluoride (HF)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	HF 3E 10 SE	0.3 ± 0.1 µA/ppm	0-10 ppm	-	> 18 months in air	3
Hydrogen Selenide (SeH ₂)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	SEH2 3E 5 LT	1.1 ± 0.5 µA/ppm	0-5 ppm	10 ppm	2 years in normal use	3
Hydrogen Sulfide (H ₂ S)	Electrochemical	Industrial Safety	Portable	Micro	None	MICROcel HS	125 ± 25 nA/ppm	0-100 ppm	1000 ppm	2 years in air	3
				4 Series	None	4H	1.2 ± 0.25 µA/ppm	0-100 ppm	500 ppm	2 years in air	3
						4HLM	1.2 ± 0.25 µA/ppm	0-100 ppm	500 ppm	2 years in air	3
						4HS+	0.7 ± 0.15 µA/ppm	0-100 ppm	500 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7H	0.37 ± 0.07 µA/ppm	0-200 ppm	1000 ppm	2 years in air	3
						7HLM	0.37 ± 0.07 µA/ppm	0-200 ppm	1000 ppm	2 years in air	3
						7HH	1.7 ± 0.3 µA/ppm	0-50 ppm	500 ppm	2 years in air	3
						7HHLM	1.7 ± 0.3 µA/ppm	0-50 ppm	500 ppm	2 years in air	3
				Sensoric	None	H2S 2E 30	60 ± 30 nA/ppm	0-30 ppm	-	> 18 months in air	2
						H2S 2E 50 S	380 ± 80 nA/ppm	0-50 ppm	-	> 4 years in air	2
						H2S 3E 30	100 ± 30 nA/ppm	0-30 ppm	-	> 18 months in air	3
						H2S 3E 100	750 ± 150 nA/ppm	0-100 ppm	-	> 4 years in air	3
						H2S 3E 100 S	750 ± 150 nA/ppm	0-100 ppm	-	> 4 years in air	3
						H2S 3E 2000 S	See datasheet	0-2000 ppm	-	See datasheet	3
			Fixed	3 Series	None	3H	0.37 ± 0.07 µA/ppm	0-200 ppm	1000 ppm	2 years in air	3
						3HLM	0.37 ± 0.07 µA/ppm	0-200 ppm	1000 ppm	2 years in air	3
						3HH	1.7 ± 0.3 µA/ppm	0-50 ppm	500 ppm	2 years in air	3
						3HHLM	1.7 ± 0.3 µA/ppm	0-50 ppm	500 ppm	2 years in air	3
						3MH	1 mV/ppm 10 mV/ppm	0-500 ppm	-	2 years in air	-
						T3H	4-20 mA	0-5 ppm 0-10 ppm 0-20 ppm 0-30 ppm 0-50 ppm 0-100 ppm 0-200 ppm	- - - - - - -	2 years in air	-
						EZT3H	4-20 mA	0-20 ppm 0-30 ppm 0-50 ppm 0-100 ppm 0-200 ppm	- - - - -	2 years in air	-

All Sensoric sensors are available with 4-20mA PCB on request

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Filter	Product Name	Output	Measurement Range	Maximum Overload	Expected Operating Life	Number of Electrodes
Mercaptan	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	TBM 2E	See datasheet	See Datasheet	-	> 1 year in air	2
Nitric Oxide (NO)	Electrochemical	Industrial Safety	Portable	4 Series	None	4NT	$0.4 \pm 0.08 \mu\text{A/ppm}$	0-250 ppm	1000 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7NT	$0.55 \pm 0.11 \mu\text{A/ppm}$	0-100 ppm	1500 ppm	3 years in air	3
				Sensoric	None	NO 3E 100	$45 \pm 15 \text{ nA/ppm}$	0-100 ppm	-	> 2 years in air	3
			Fixed	3 Series	None	3NT	$0.55 \pm 0.11 \mu\text{A/ppm}$	0-100 ppm	300 ppm	3 years in air	3
						3MNT	1 mV/ppm	0-1000 ppm	-	3 years in air	-
						T3NT	4-20 mA	0-20 ppm	-	3 years in air	-
								0-30 ppm	-		
								0-50 ppm	-		
								0-100 ppm	-		
								0-200 ppm	-		
								0-300 ppm	-		
		Emissions	Portable / Fixed	5 Series	To remove SO ₂	5NF	$0.1 \pm 0.02 \mu\text{A/ppm}$	0-1000 ppm	5000 ppm	3 years in air	4 (Note 3)
			Fixed	3 Series	To remove SO ₂	3NFF	$0.1 \pm 0.02 \mu\text{A/ppm}$	0-5000 ppm	10000 ppm	2 years in air	3
						3MNFF	1 mV/ppm	0-5000 ppm	-	2 years in air	-
						T3NFF	4-20 mA	0-100 ppm 0-200 ppm 0-300 ppm 0-500 ppm 0-1000 ppm 0-2000 ppm	- - - - - -	3 years in air	-
		Medical	Portable	4 Series	To remove acid gases	MNOLO	$1.2 \pm 0.5 \mu\text{A/ppb}$	0-300 ppb	500 ppb	> 2 years in normal use	4 (Note 1)
			Portable / Fixed	3 Series	None	MNO1	$0.25 \pm 0.05 \mu\text{A/ppm}$	0-100 ppm	1500 ppm	1 year in air	4 (Note 1)
				7 Series	None	MNO2	$0.25 \pm 0.05 \mu\text{A/ppm}$	0-100 ppm	1500 ppm	1 year in air	4 (Note 1)
		Automotive	Portable / Fixed	-	To remove SO ₂	NX1	See datasheet	0-5000 ppm	5000 ppm	See datasheet	-
Nitrogen Dioxide (NO ₂)	Electrochemical	Industrial Safety	Portable	4 Series	None	4ND	$0.6 \pm 0.15 \mu\text{A/ppm}$	0-20 ppm	150 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7NDH	$1.4 \pm 0.3 \mu\text{A/ppm}$	0-20 ppm	200 ppm	2 years in air	3
				Sensoric	None	NO2 3E 50	$200 \pm 40 \text{ nA/ppm}$	0-50 ppm	-	> 2 years in air	3
			Fixed	3 Series	None	3NDH	$1.4 \pm 0.3 \mu\text{A/ppm}$	0-20 ppm	300 ppm	2 years in air	3
						3MNDH	1 mV/ppm 10 mV/ppm	0-200 ppm	-	2 years in air	-
						T3NDH	4-20 mA	0-5 ppm 0-10 ppm 0-20 ppm 0-50 ppm	- - - -	2 years in air	-
						EZT3NDH	4-20 mA	0-5 ppm	-	2 years in air	-
								0-10 ppm	-		
								0-20 ppm	-		
								0-30 ppm	-		
								0-50 ppm	-		
		Emissions	Portable / Fixed	5 Series	None	5ND	$0.36 \pm 0.07 \mu\text{A/ppm}$	0-200 ppm	500 ppm	2 years in air	3
			Fixed	3 Series	None	3ND	$0.37 \pm 0.07 \mu\text{A/ppm}$	0-100 ppm	1000 ppm	2 years in air	3
						T3ND	4-20 mA	0-300 ppm	-	2 years in air	-
		Environmental	Fixed	3 Series	None	A3OZ	$2.2 \pm 0.5 \mu\text{A/ppm}$	0-10 ppm	100 ppm	2 years in air	4 (Note 1)
		Medical	Portable / Fixed	3 Series	None	MND1S	$0.5 \pm 0.1 \mu\text{A/ppm}$	0-50 ppm	200 ppm	1 year in air	4 (Note 1)
				7 Series	None	MND2	$0.5 \pm 0.1 \mu\text{A/ppm}$	0-50 ppm	200 ppm	1 year in air	4 (Note 1)

Note 1 : Incorporates auxillary electrode for baseline compensation

Note 3 : Incorporates scavenging electrode for removal of by-products

All Sensoric sensors are available with 4-20mA PCB on request

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Filter	Product Name	Output	Measurement Range	Maximum Overload	Expected Operating Life	Number of Electrodes
Oxygen (O ₂)	Electrochemical	Industrial Safety	Portable	4 Series	None	4OXLL (safety)	80 - 130 nA in air	0-25%vol	30%vol	5 years in air	3
						4OXV	0.1 ± 0.02 mA in air	0-25%vol	30%vol	2 years in air	2
			Portable / Fixed	7 Series	None	7OXV	0.195 - 0.25 mA in air	0-25%vol	30%vol	2 years in air	2
						T7OXV	4-20 mA	0-25%vol	-	2 years in air	-
				-	None	CNLH	13 - 17 mV across 10 Ω	0-2 ppm	1000 ppm	-	2
						CNLL	50 - 70 mV across 10 Ω	0-2 ppm	1000 ppm	-	2
		Emissions	Portable / Fixed	4 Series	None	4OXLL (emissions)	80 - 130 nA in air	0-25%vol	30%vol	7 years in air	3
				2 Series	None	2FO	0.41 ± 0.07 mA in air	0-25%vol	30%vol	2 years in air	2
						2FON	0.41 ± 0.07 mA in air	0-25%vol	30%vol	2 years in air	2
				5 Series	None	5OXLL	80 - 130 nA in air	0-25%vol	30%vol	7 years in air	3
						5FO	0.41 ± 0.05 mA in air	0-25%vol	30%vol	2 years in air	2
		Medical	For use in anesthesia equipment	-	None	MOX1	9 - 13 mV in 210 mBar O ₂	100%vol	100%vol	1/5 x 10 ⁶ %O ₂ hours	3
						MOX2	9 - 13 mV in 210 mBar O ₂	100%vol	100%vol	1/5 x 10 ⁶ %O ₂ hours	3
						MOX3	9 - 13 mV in 210 mBar O ₂	100%vol	100%vol	1/5 x 10 ⁶ %O ₂ hours	3
						MOX4	See datasheet	100%vol	100%vol	See datasheet	3
						MOX6	11 - 15 mV with 300 Ω external load resistance in 209 mBar O ₂ @ 20°C	100%vol	100%vol	940,000 %O ₂ hours	3
						MOX9	9 - 13 mV in 210 mBar O ₂	100%vol	100%vol	900,000 %O ₂ hours	3
			For use in respiratory equipment, breath analysis	-	None	MOX20	0.8 - 1.25 V in air	100%vol	100%vol	2 years in air	3
			For checking SCUBA equipment	-	None	Divecel3	3.9 - 13.5 mV in 210 mBar O ₂	100%vol	100%vol	2 years in air	3
			For use in incubators	-	None	DO2	25 - 35 mV in 210 mBar O ₂	100%vol	100%vol	2 years in air	3
		Automotive	Portable / Fixed	-	None	INQOX	7 - 14 mV in 210 mBar O ₂	100%vol	100%vol	See datasheet	3
						AO2	9 - 13 mV in air	100%vol	100%vol	2 years in air	3
						AO3	9 - 13 mV in air	100%vol	100%vol	2 years in air	3
Ozone (O ₃)	Electrochemical	Industrial Safety	Portable / Fixed	7 Series	None	7OZ	7.2 ± 2.3 µA/ppm	0-2 ppm	5 ppm	2 years in air	3
						7O3	6 ± 2 µA/ppm	0-2 ppm	5 ppm	2 years in air	3
				Sensoric	None	O3 3E 1	1500 ± 500 nA/ppm	0-1 ppm	-	18 months in air	3
						O3 3E 1 F	450 ± 150 nA/ppm	0-1 ppm	-	18 months in air	3
			Fixed	3 Series	None	3OZ	7.2 µA/ppm ± 20%	0-2 ppm	5 ppm	2 years in air	3
		Emissions	Fixed	3 Series	None	A3OZ	2.2 ± 0.5 µA/ppm	0-10 ppm	100 ppm	2 years in air	4 (Note 1)
Phosgene (COCl ₂)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	To remove H ₂ S	COCL2 3E 1	650 ± 150 nA/ppm	0-1 ppm	-	> 1 year in air	3
Phosphine (PH ₃)	Electrochemical	Industrial Safety	Portable	4 Series	None	4PHFast	1.7 ± 0.3 µA/ppm	0-5 ppm	20 ppm	2 years in air	3
			Portable / Fixed	Sensoric	None	PH3 3E 5 LT	2.2 ± 0.5 µA/ppm	0-5 ppm	20 ppm	2 years in air	3
					H ₂ S filter	PH3 3E 5 F LT	2 ± 0.5 µA/ppm	0-5 ppm	20 ppm	2 years in air	3
Silane (SiH ₄)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	SiH4 3E 50 LT	130 ± 70 nA/ppm	0-50 ppm	50 ppm	2 years in air	3

Note 1 : Incorporates auxillary electrode for baseline compensation

All Sensoric sensors are available with 4-20mA PCB on request

Selection Tables

Gas Type	Technology	Application	Instrumentation Type	Product Range	Filter	Product Name	Output	Measurement Range	Maximum Overload	Expected Operating Life	Number of Electrodes
Sulfur Dioxide (SO ₂)	Electrochemical	Industrial Safety	Portable	4 Series	To remove H ₂ S	4SRev2	0.5 ± 0.1 µA/ppm	0-20 ppm	150 ppm	2 years in air	3
			Portable / Fixed	7 Series	None	7SH	1.25 ± 0.25 µA/ppm	0-20 ppm	100 ppm	2 years in air	3
					To remove H ₂ S	7STF	0.37 ± 0.07 µA/ppm	0-100 ppm	500 ppm	2 years in air	3
			Fixed	3 Series	None	3SH	1.25 ± 0.25 µA/ppm	0-20 ppm	100 ppm	2 years in air	3
						T3SH	4-20 mA	0-5 ppm 0-10 ppm 0-20 ppm 0-30 ppm 0-50 ppm 0-100 ppm	-	2 years in air	-
						EZT3SH	4-20 mA	0-5 ppm 0-10 ppm 0-20 ppm 0-30 ppm 0-50 ppm	-	2 years in air	-
						3STF	0.37 ± 0.07 µA/ppm	0-100 ppm	500 ppm	2 years in air	3
					To remove H ₂ S	3MSTF	1 mV/ppm 10 mV/ppm	0-500 ppm (low) 0-200 ppm (high)	-	2 years in air	-
						T3STF	4-20 mA	0-10 ppm 0-20 ppm 0-30 ppm 0-50 ppm 0-100 ppm 0-200 ppm	-	2 years in air	-
						EZT3STF	4-20 mA	0-20 ppm 0-30 ppm 0-50 ppm 0-100 ppm 0-200 ppm	-	2 years in air	-
		Emissions	Portable / Fixed	5 Series	None	5SF	0.1 ± 0.02 µA/ppm	0-2000 ppm	5000 ppm	2 years in air	3
					To remove H ₂ S & HCl	5SFF	0.1 ± 0.02 µA/ppm	0-2000 ppm	5000 ppm	2 years in air	3
			Fixed	3 Series	To remove H ₂ S & HCl	3SFF	0.1 ± 0.02 µA/ppm	0-2000 ppm	5000 ppm	2 years in air	3
					None	3SF	0.1 ± 0.02 µA/ppm	0-2000 ppm	5000 ppm	2 years in air	3
						A3STF	0.6 ± 0.12 µA/ppm	0-10 ppm	100 ppm	2 years in air	4 (Note 1)
						3MSF	1 mV/ppm	0-5000 ppm	-	2 years in air	-
						T3SF	4-20 mA	0-100 ppm 0-500 ppm 0-1000 ppm	-	2 years in air	-
						EZT3SF	4-20 mA	0-100 ppm 0-200 ppm 0-300 ppm 0-500 ppm 0-1000 ppm	-	2 years in air	-
Tetrahydrothiophene (C ₄ H ₈ S)	Electrochemical	Industrial Safety	Portable / Fixed	Sensoric	None	THT 3E 50	140 ± 50 nA/mg/m ³	0-50 mg/m ³	-	> 18 months in air	3

Note 1 : Incorporates auxillary electrode for baseline compensation

All Sensoric sensors are available with 4-20mA PCB on request

3 Series Accessories

Mounting Nose

A diffusion mounting assembly, the 'nose' adaptor, has been designed for convenient mounting in a wide range of weatherproof housings. Moulded in resilient polyester, the nose adaptor requires a 25mm diameter hole in the outside wall of the housing to allow installation. The Mounting Nose also features the calibration plug for easy zeroing and exposure to calibration gas. A bonded membrane and mesh is employed to prevent the ingress of dirt and dust particles into the CiTiceL®. 'O'rings and PTFE disks are available separately on request.

Mounting Collar

A diffusion mounting assembly, known as a 'collar', has been designed to mount the 3 Series CiTiceL® inside the case of an instrument with a suitable opening in the wall for gas access. This enables the protective filter membrane to be mounted against the CiTiceL®. It also incorporates a push-in zero/calibration 'plug'. With the connector pipe seals in place, a zero background gas measurement can be made. With the connector pipe seals removed, a suitable calibration gas can be passed across the sensor from a cylinder. 'O'rings and PTFE disks are available separately on request.

Calibration Plug

The Calibration Plug allows for easy zeroing and exposure to calibration gas

Aspiration Fixing

When pumps (particularly diaphragm pumps) are used in aspirated systems, pressure oscillations are introduced into the gas stream which can result in false, enhanced signals from the sensors.

The Aspiration Fixing minimises the effect of pumps. The assembly consists of an expansion chamber with a small bleed hole which dampens the flow of gas to the sensor. Flow rates of up to 1 litre/minute can be pumped across the CiTiceL® with no increase in signal. A vent in the top of the hood allows the gas to be vented outside the instrument.

PCB Assembly (mV output)

A PCB which can be connected to the CiTiceL® to convert the raw output of the sensor into an easy to use mV output.

PCB Transmittor Assembly (4-20 mA output)

A PCB which can be connected to the CiTiceL® to convert the raw output of the sensor into the industry standard 4-20 mA output.

Other Accessories

IRceL® Evaluation Kit

A kit is available to assist in evaluation of the IRceL®, with all the necessary equipment to begin making gas measurements. The kit includes an evaluation circuit with RS232 output, gas hood and enclosure to simulate an instrument housing and simple to use host software with data logging facility.

MICROceL® / MICROpeL® Connectors

Connectors are available for the easy mounting of MICROceL® and MICROpeL® on circuit boards.

Bayonet Fittings

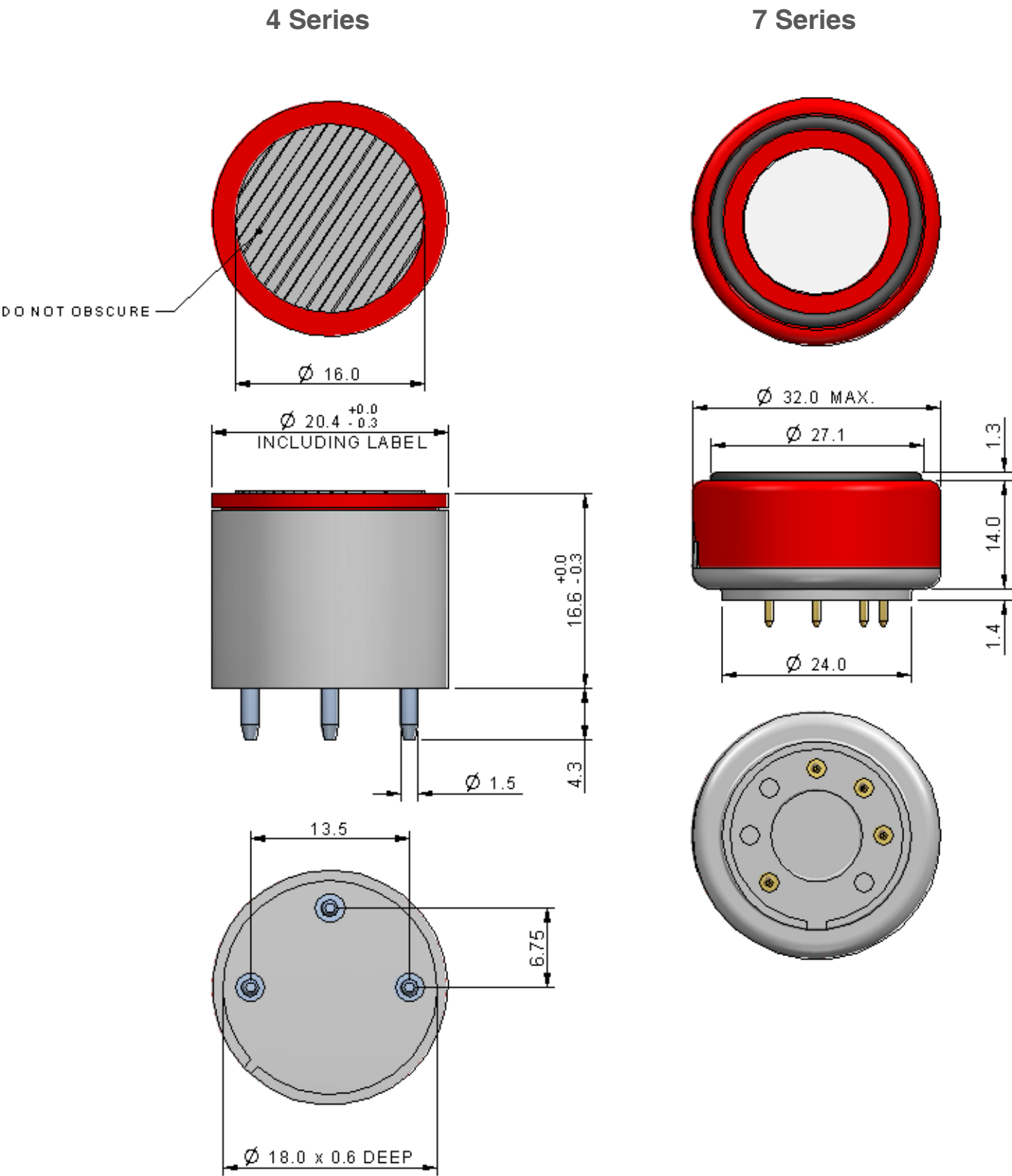
Bayonet block mounting accessories are available for the 2FO CiTiceL® and for 5 Series sensors, enabling solid mounting and gas tight interfaces in sample drawing instruments.

MOX-2 Cable

A dedicated cable is available for use with the MOX-2.

In-Line SOx/NOx Filter

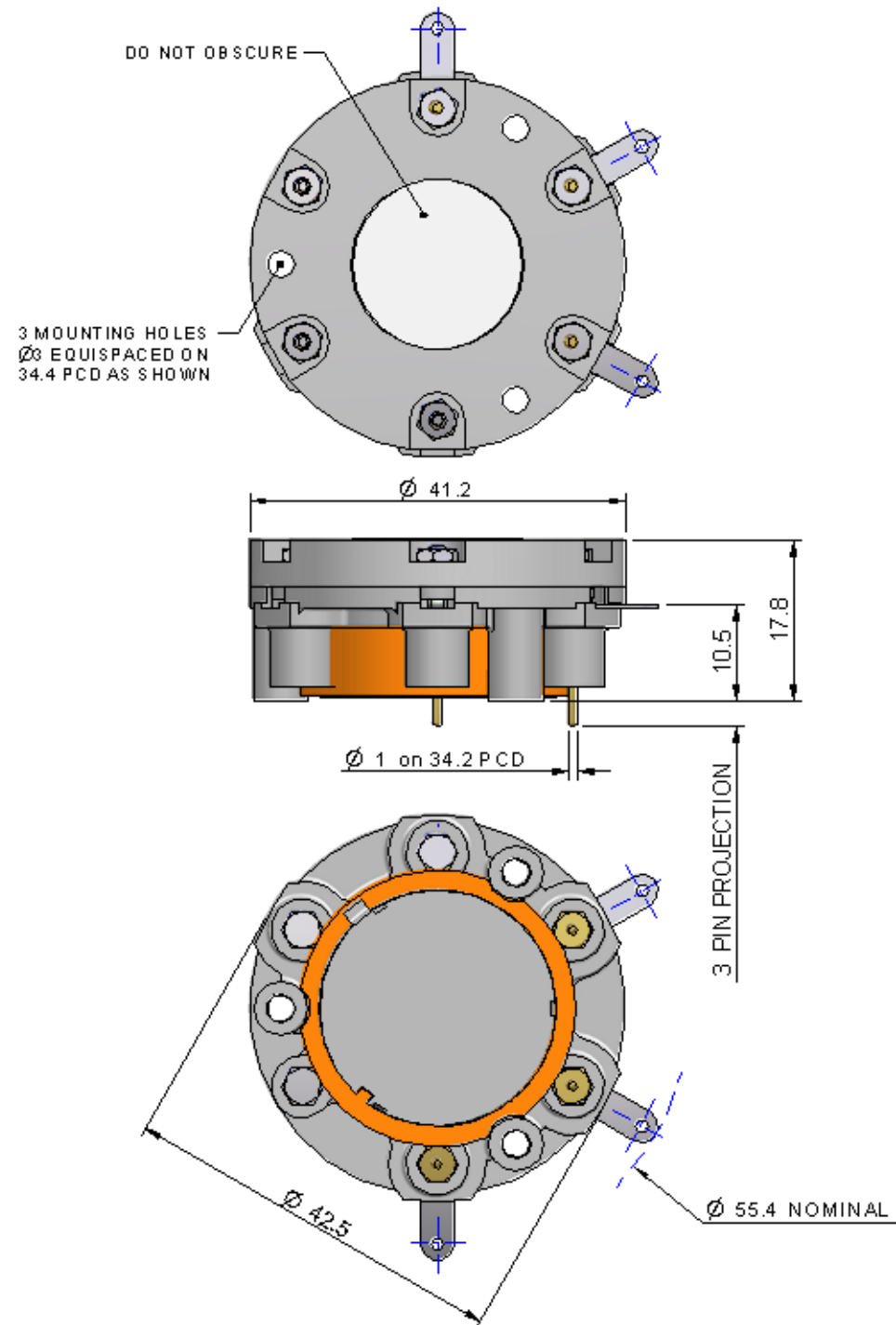
This replaceable filter cartridge is available for use with carbon monoxide CiTiceLs in pumped systems. The filter is designed to be inserted in the gas sampling system to absorb SO₂, NO and NO₂ without affecting the CO concentration. the industry standard 4-20 mA output.



NOTE: Pin locations may vary

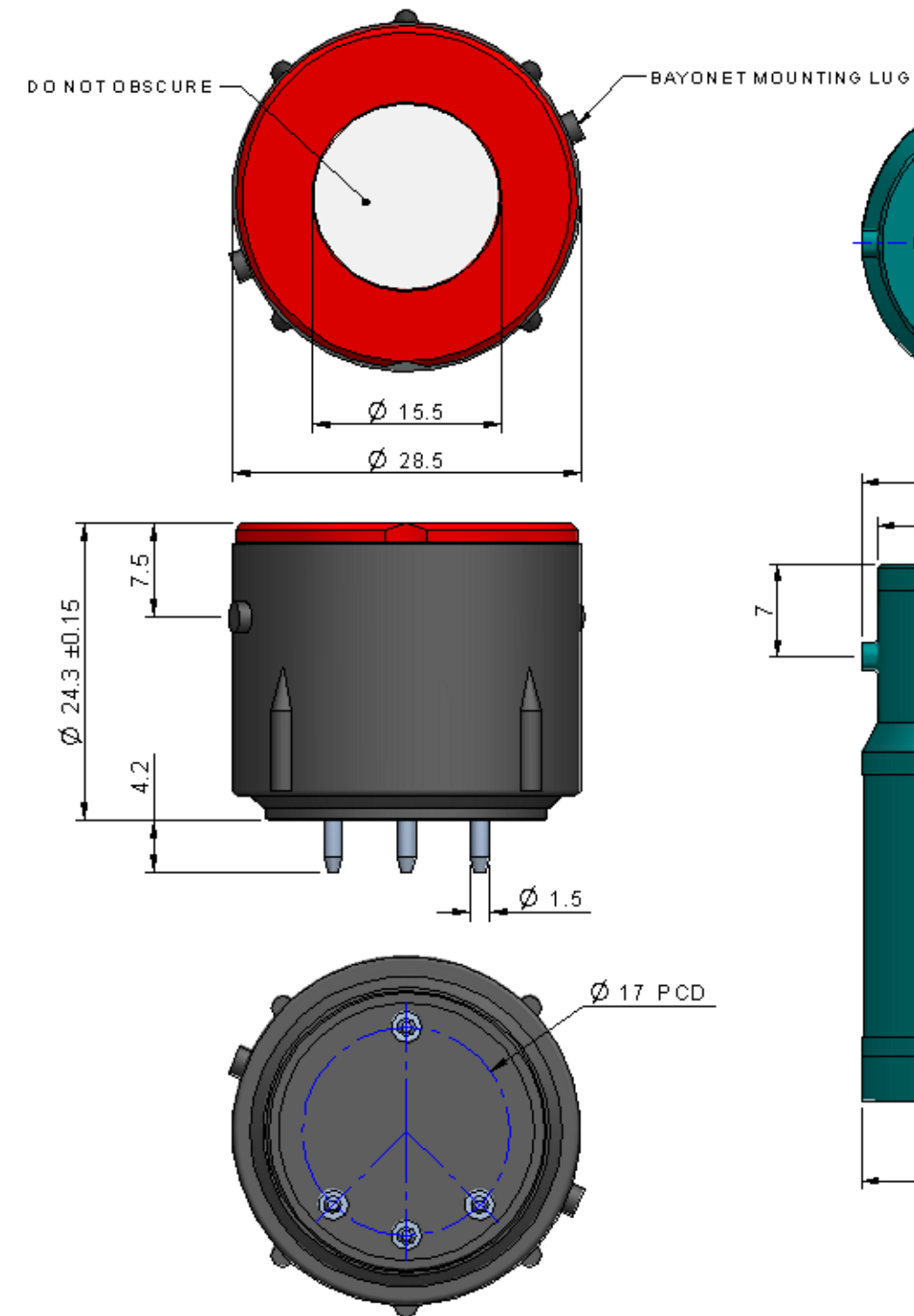
All dimensions in mm

3 Series

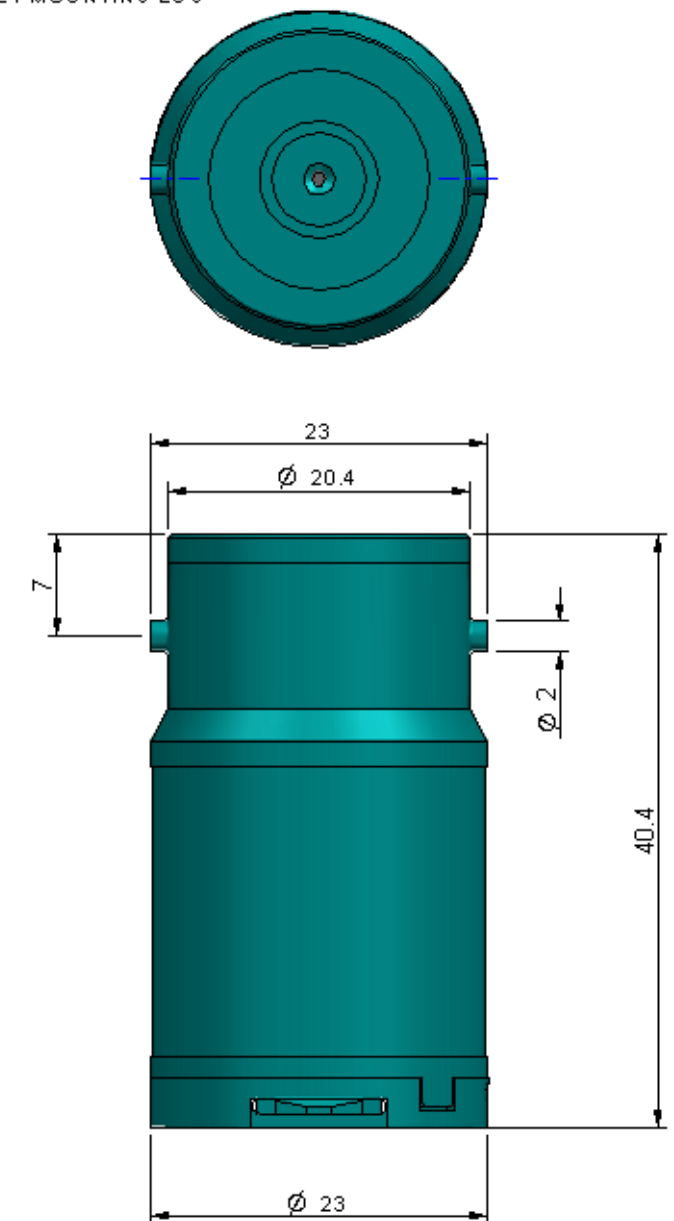


NOTE: Pin locations may vary

5 Series

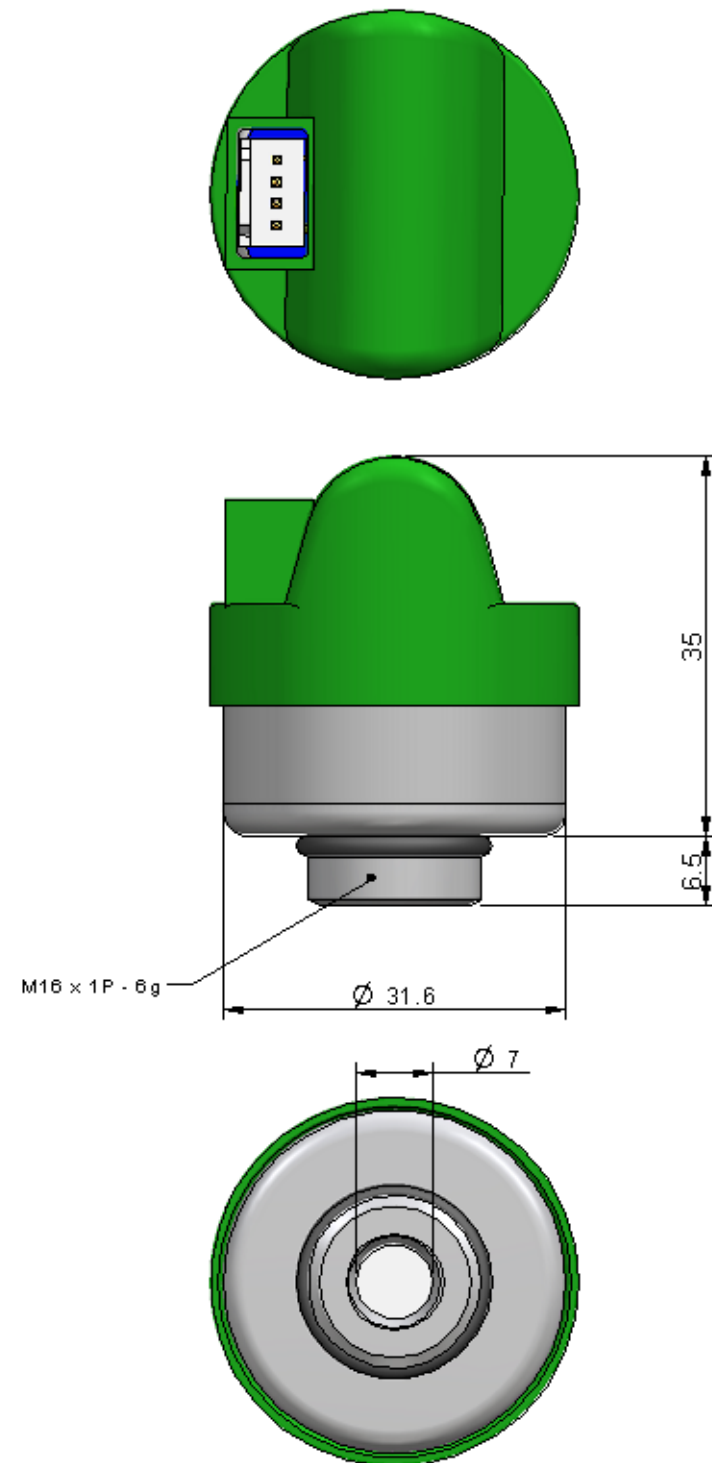


2FO

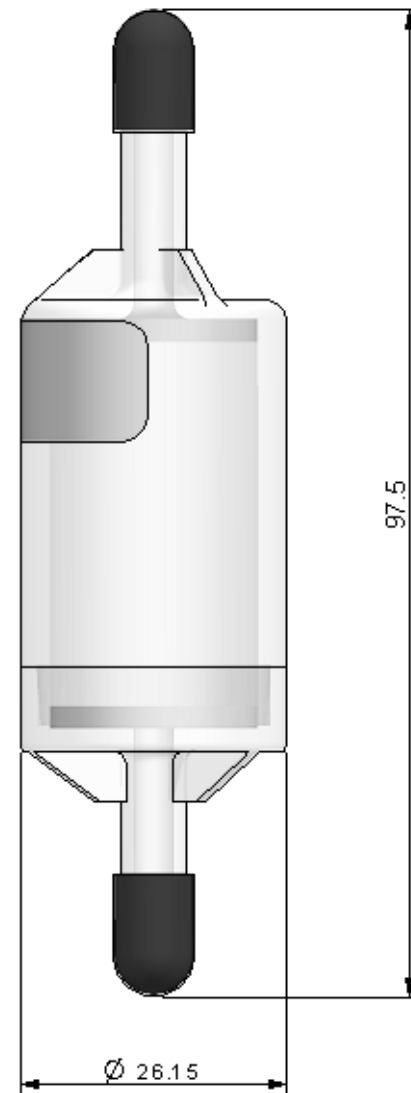


All dimensions in mm

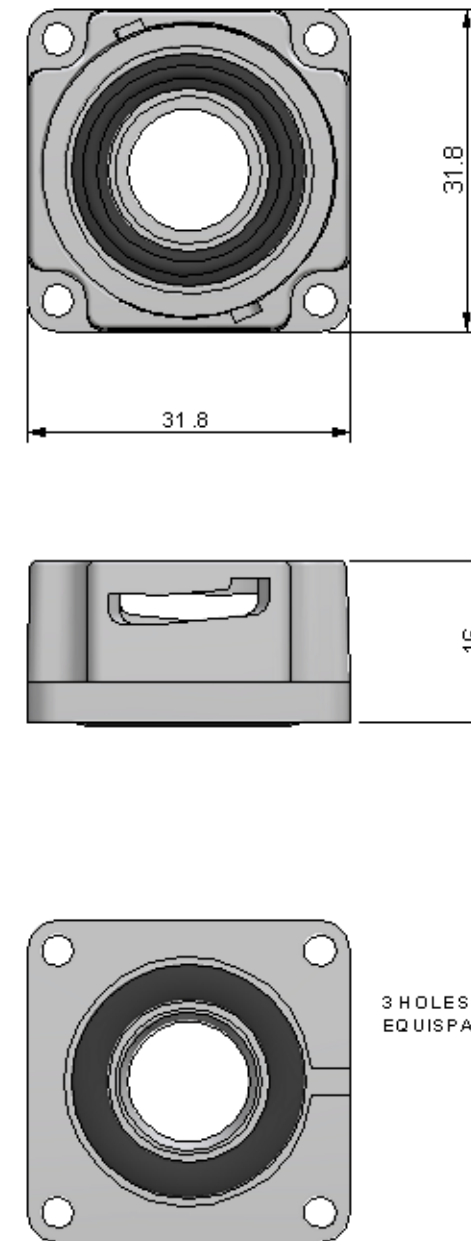
NX1



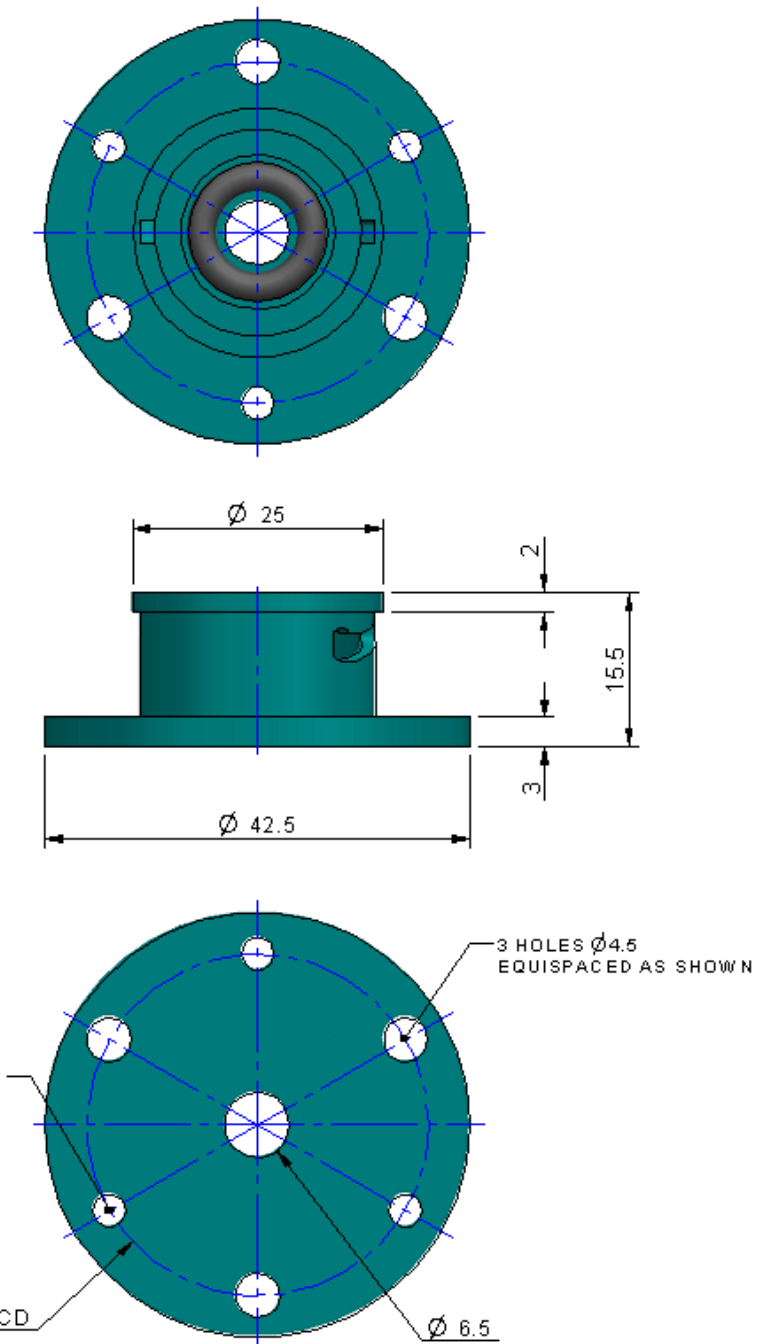
In-Line SOx/NOx Filter



5 Series Bayonet Fitting

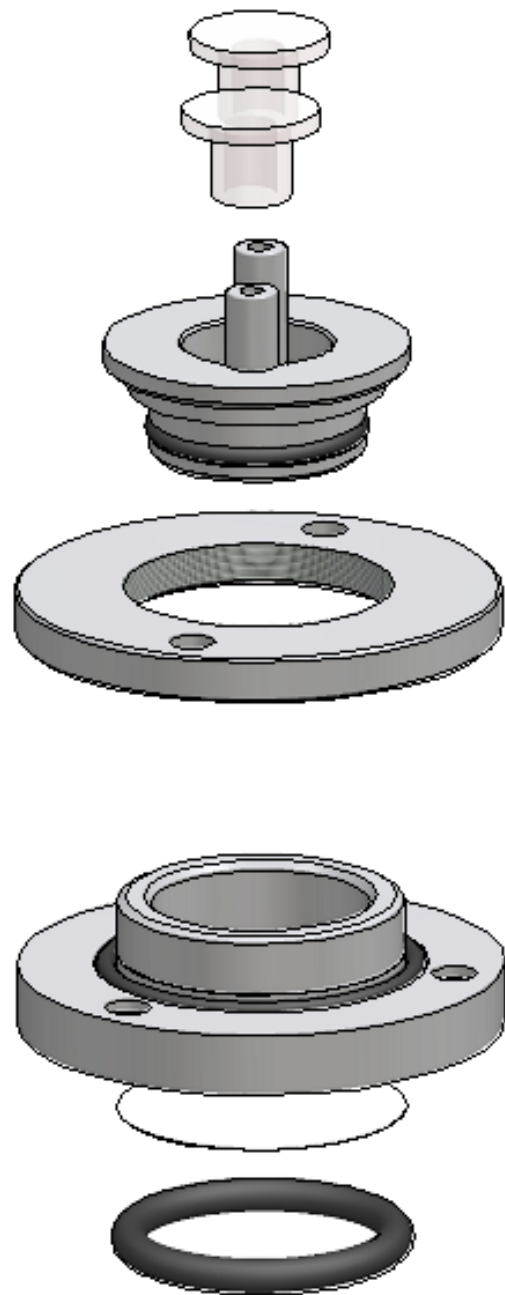


2FO Bayonet Fitting

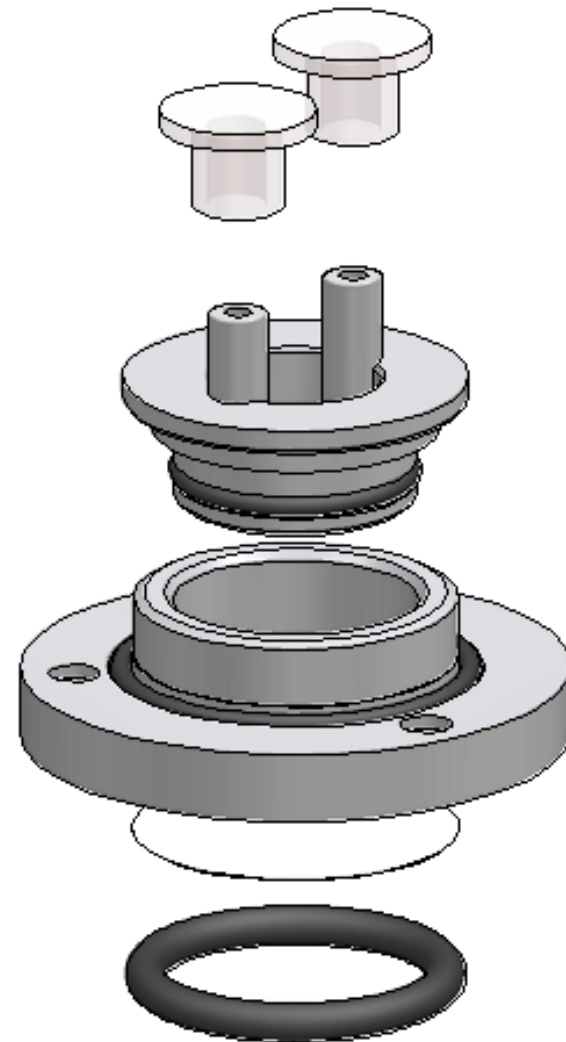


All dimensions in mm

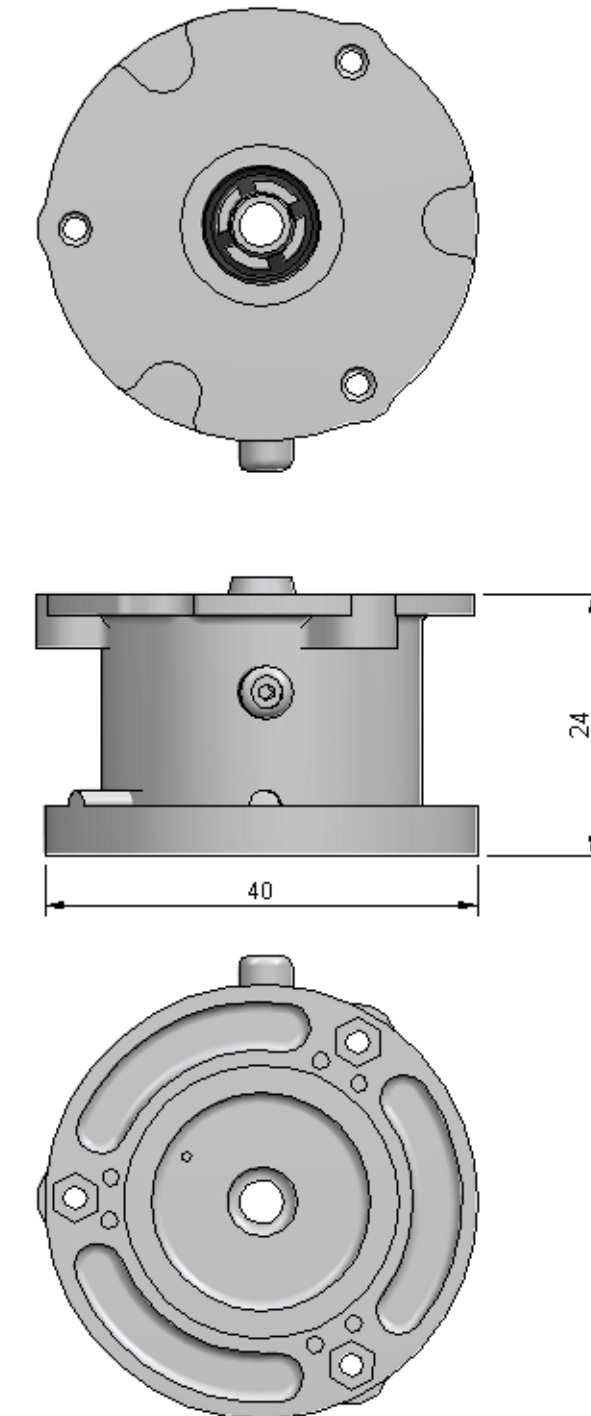
**Mounting Nose for
3 Series Sensors**



**Mounting Collar for
3 Series Sensors**

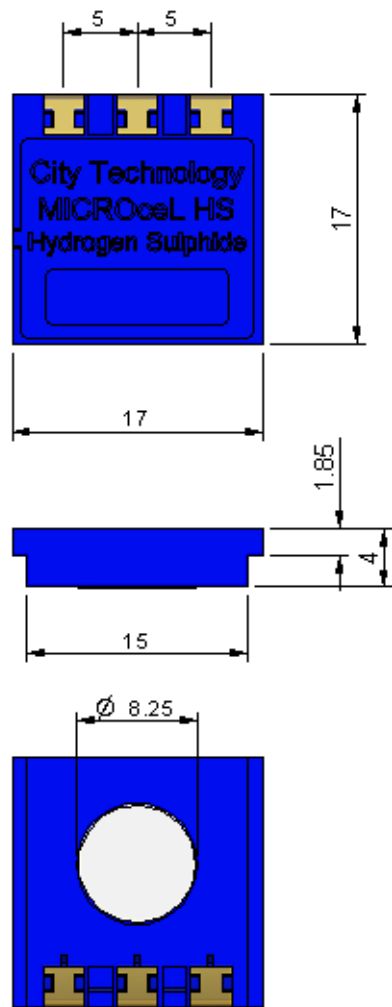


**Aspiration Fixing for
3 Series Sensors**

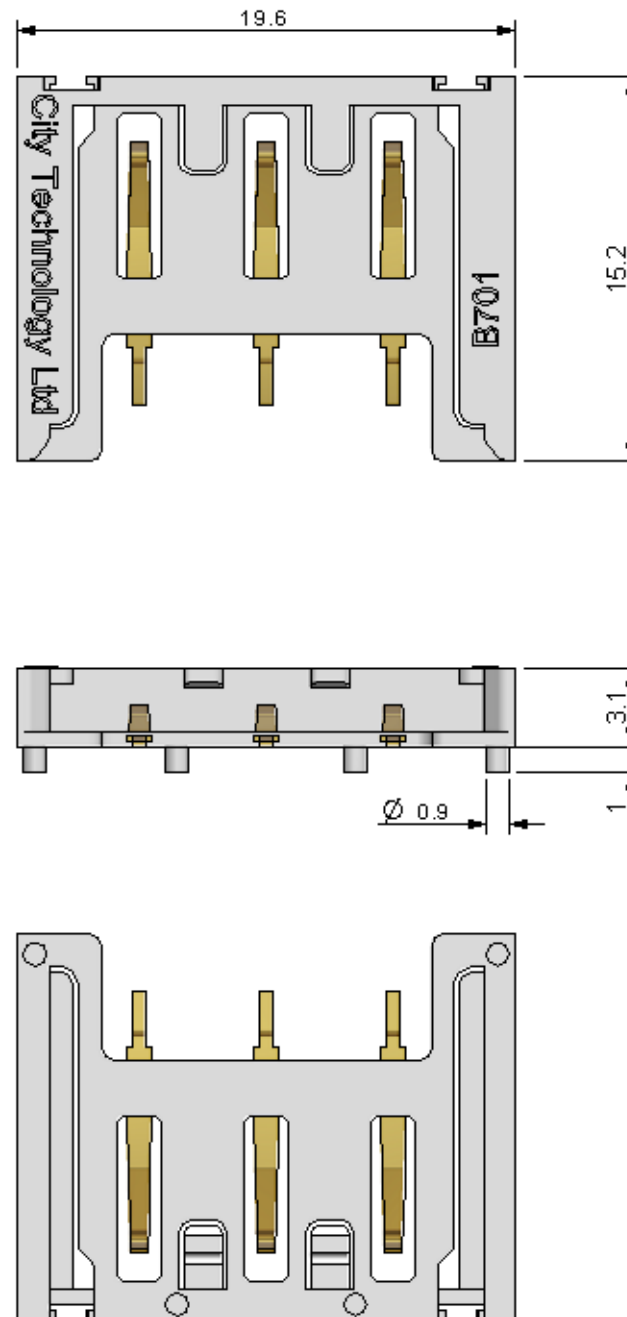


All dimensions in mm

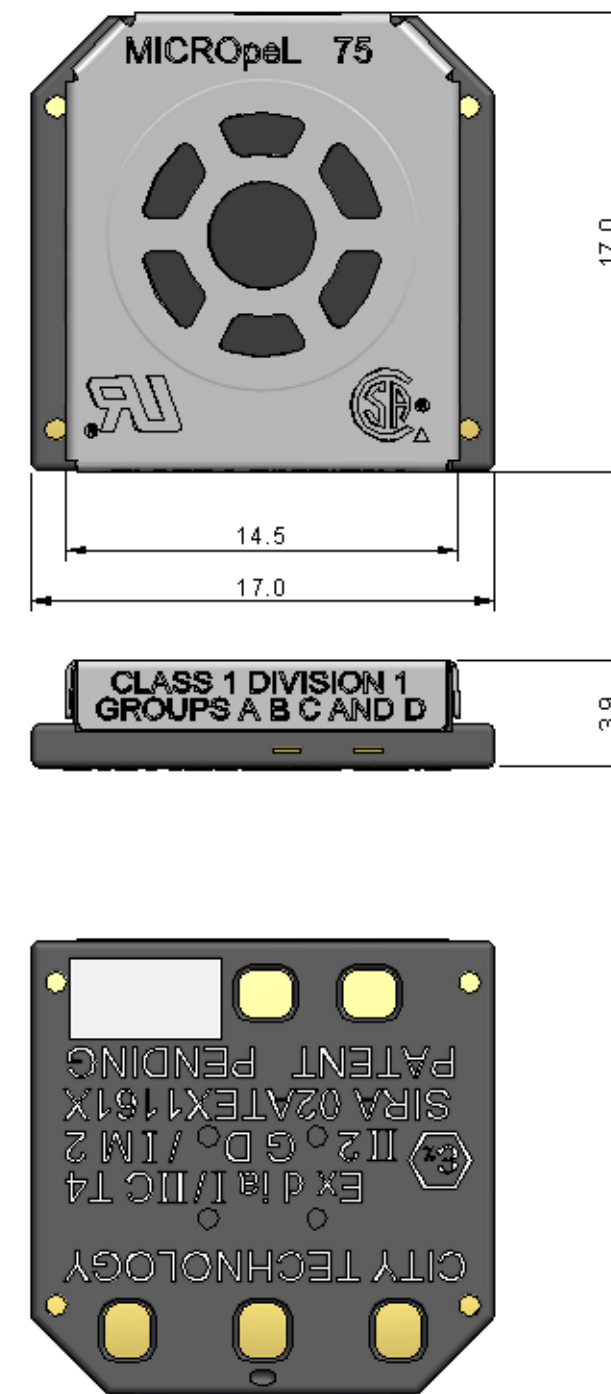
MICROcel



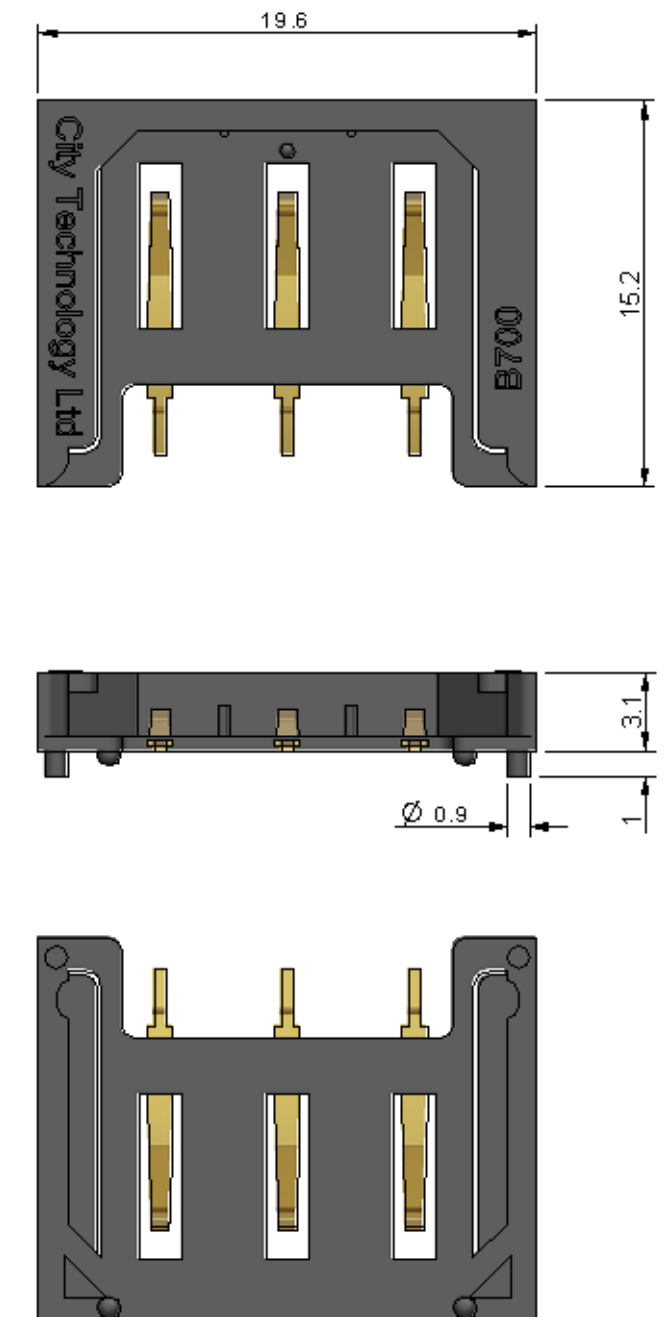
MICROcel Connector



MICROpeL

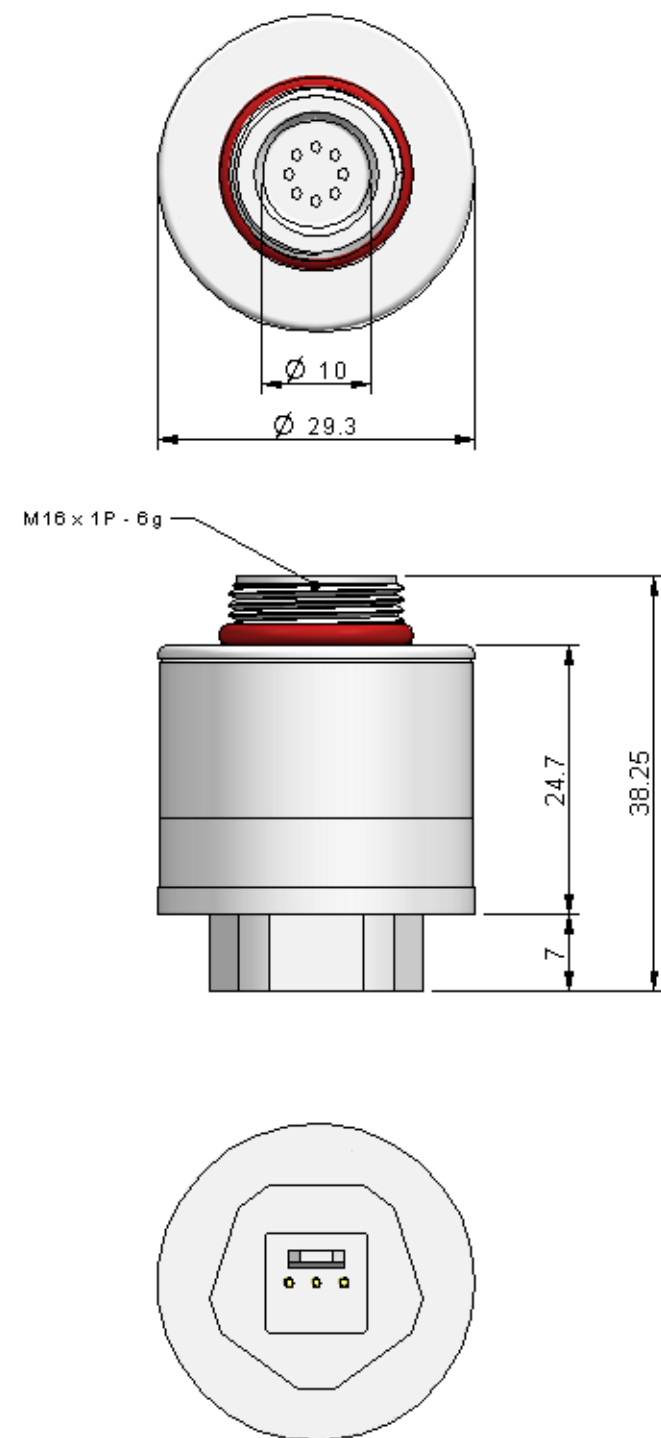


MICROpeL Connector

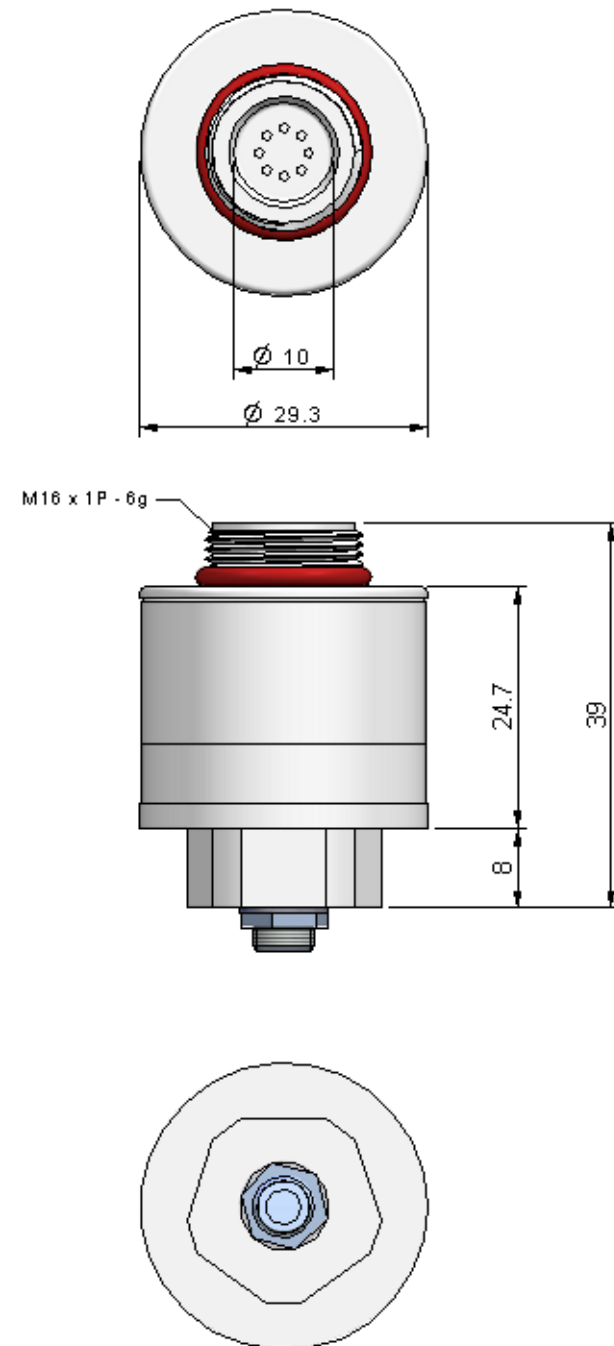


All dimensions in mm

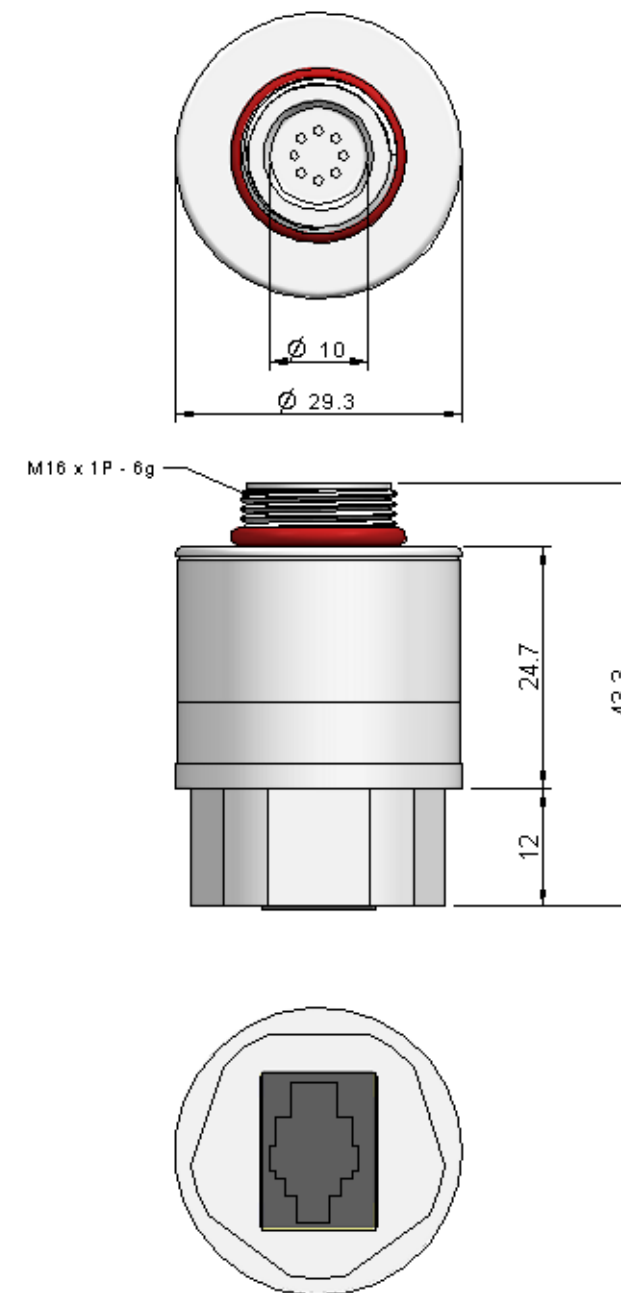
A02, D02, Divecel-3, INQOX, MOX-1,
MOX-20



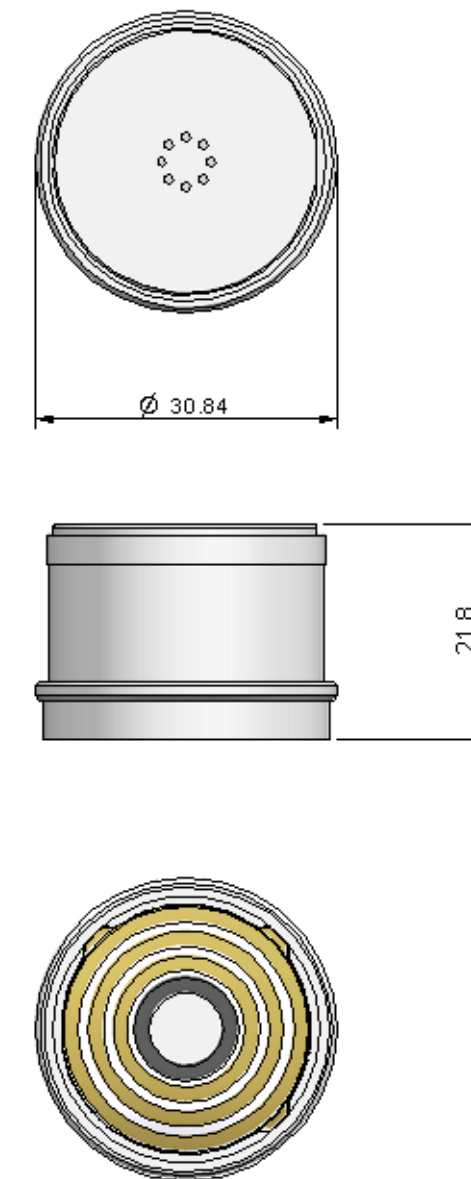
A03, MOX-2



MOX-3

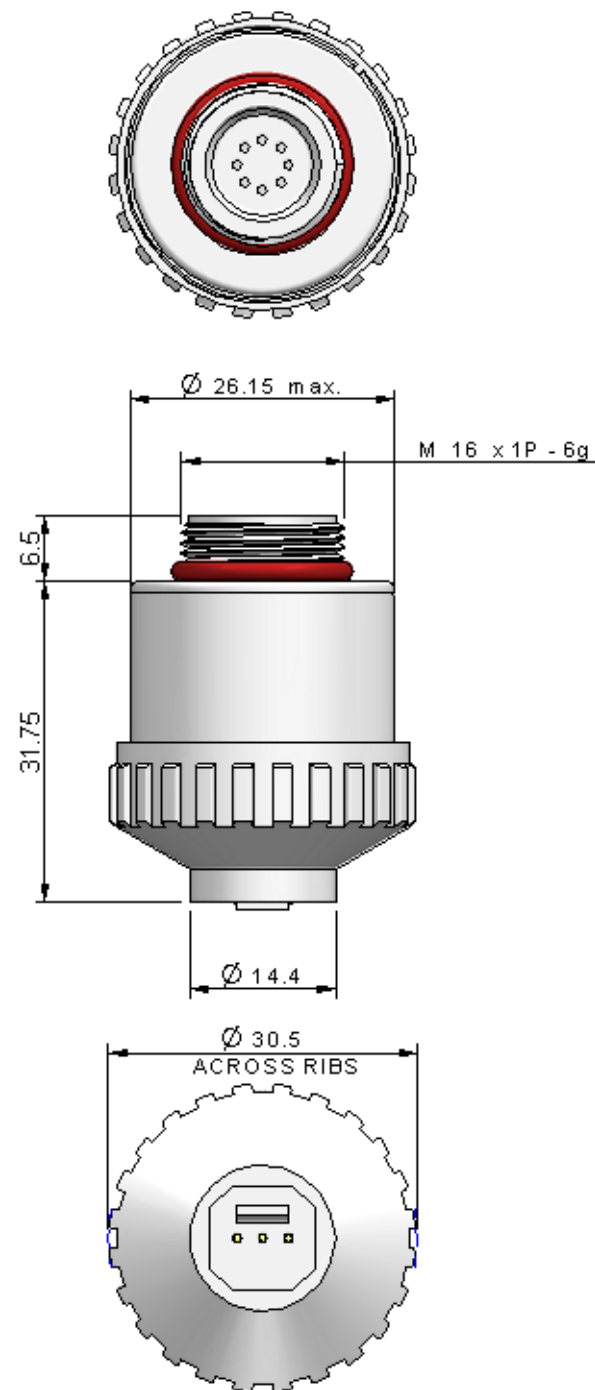


MOX-6

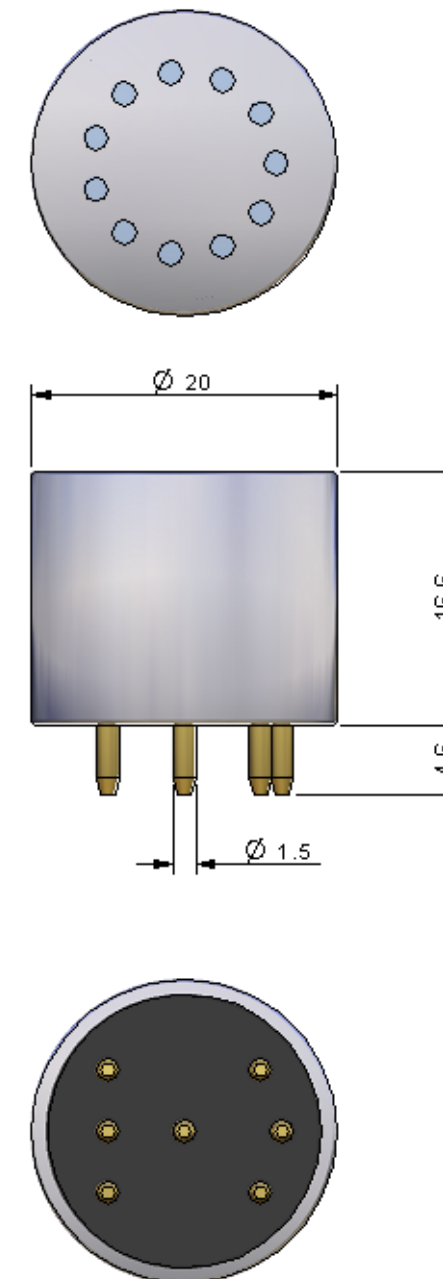


All dimensions in mm

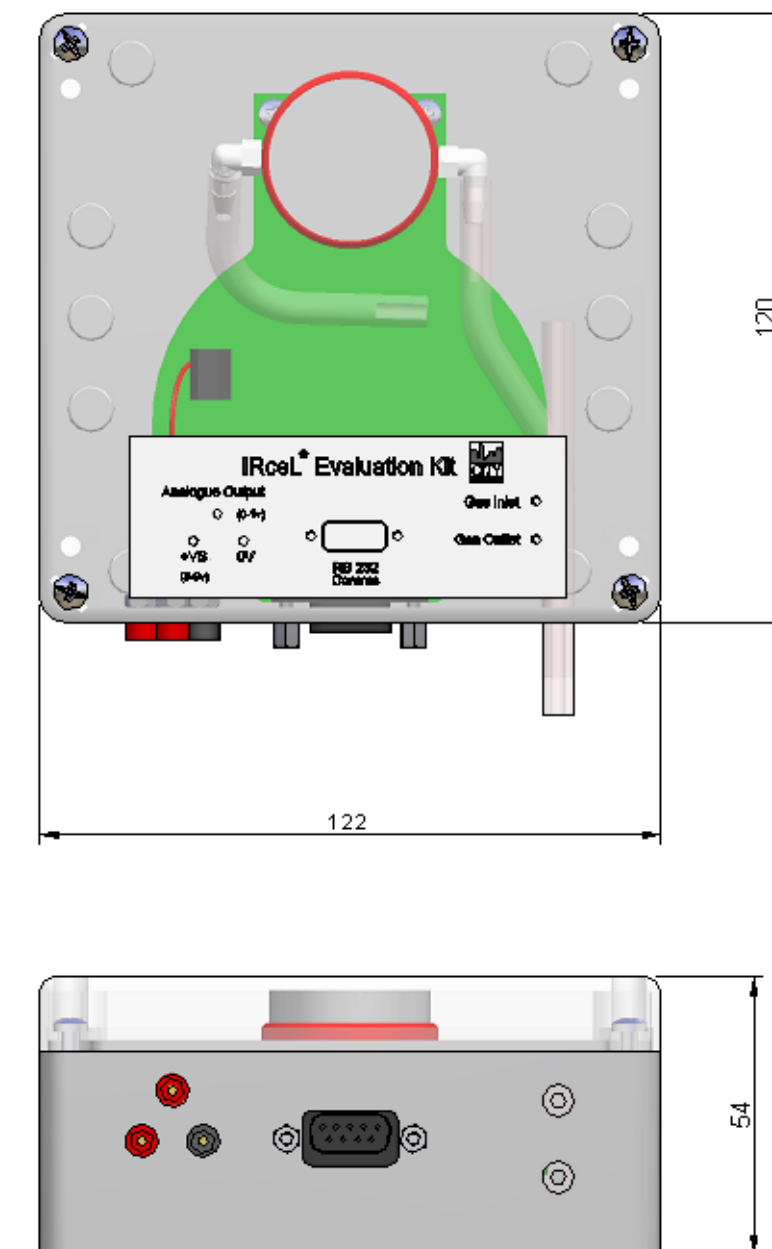
MOX-9

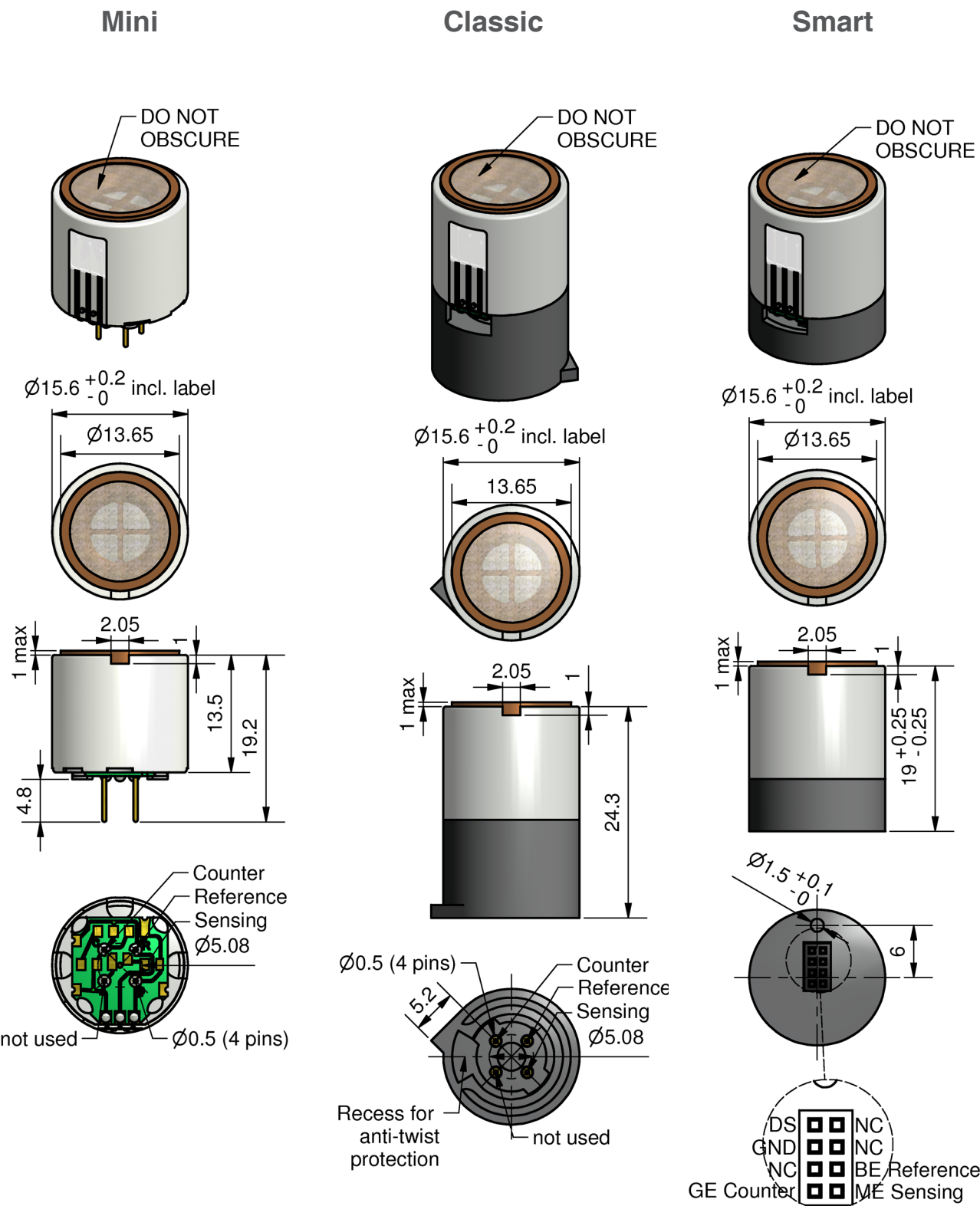


IRCEL

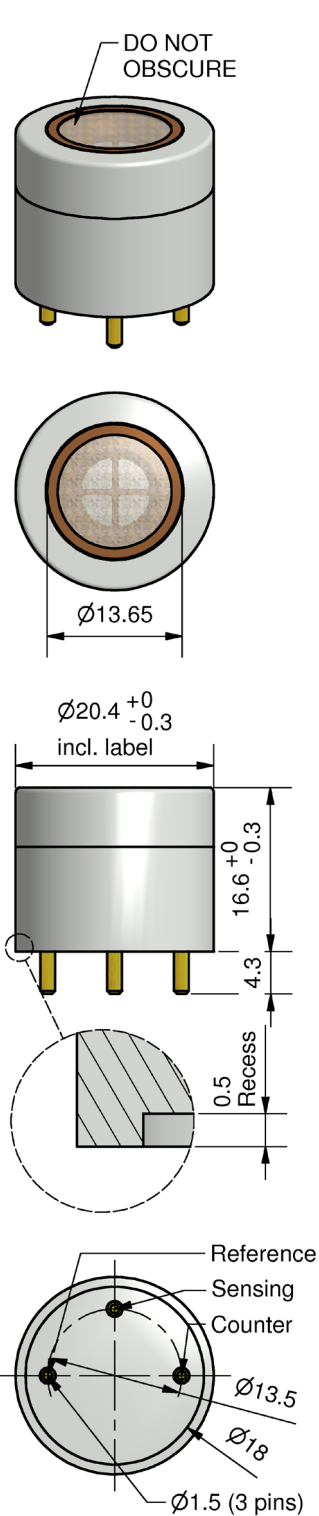


IRCEL Evaluation Kit

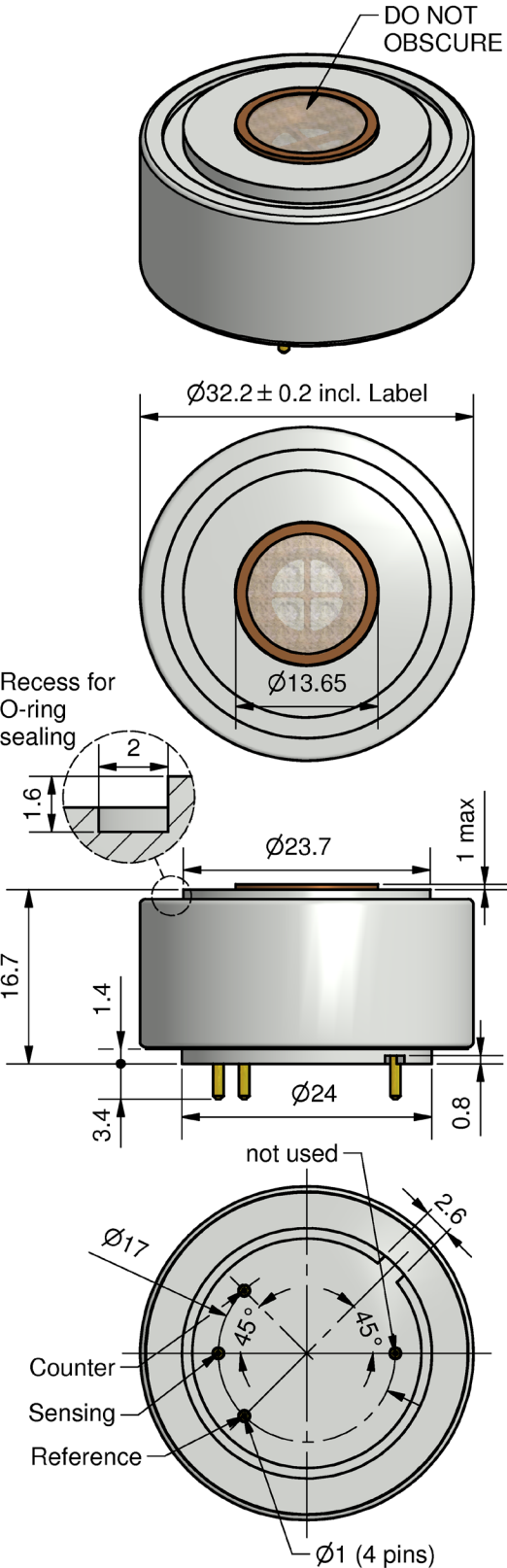




4 Series Adaptation

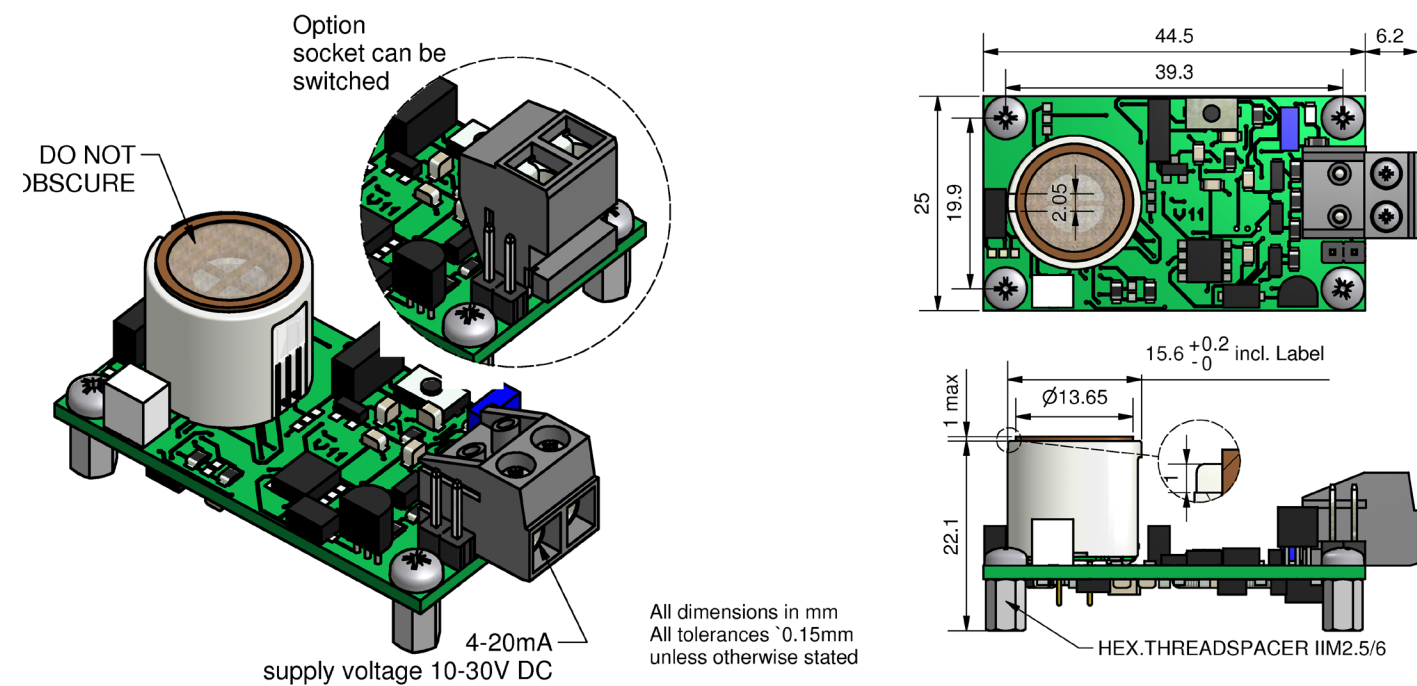


7 Series Adaptation

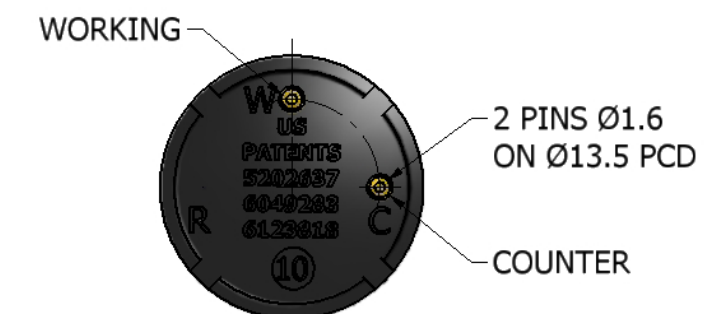
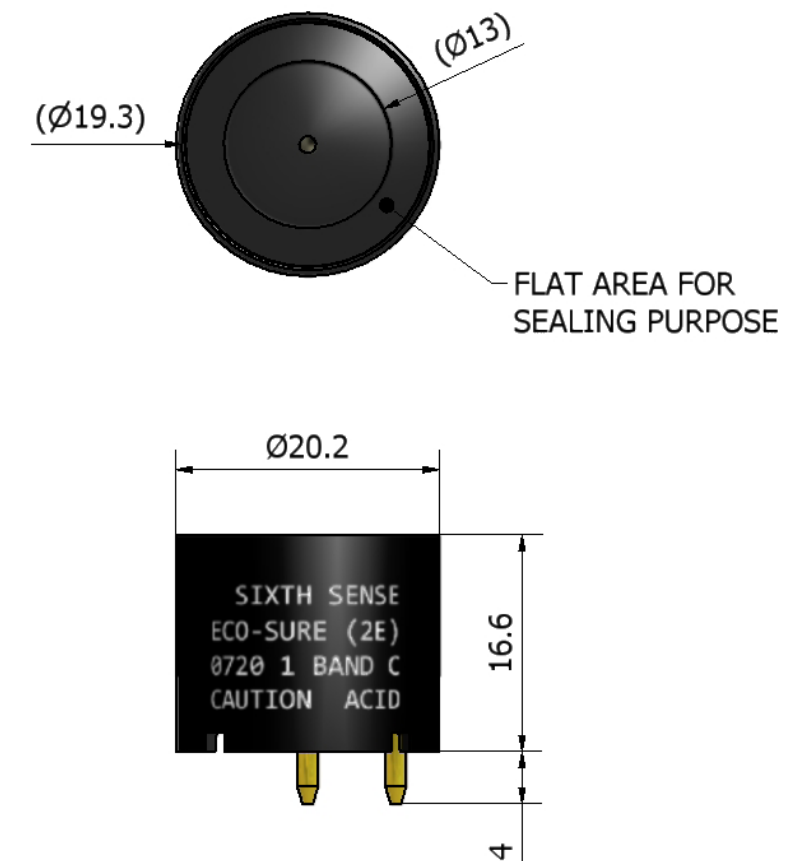


All dimensions in mm

4-20mA Transmitter Board with MINI sensor



ECOSURE®



Company Addresses

City Technology Ltd

Walton Road
Portsmouth
Hampshire
PO6 1SZ
United Kingdom

Tel: +44 (0) 23 9232 5511
Fax: +44 (0) 23 9238 6611

City Technology Ltd

European Regional Office
Justus-von-Liebig-Strasse 22
53121 Bonn
Germany

Tel: +49 (0) 22 852 6640
Fax: +49 (0) 22 8526 6439

City Technology Ltd

North American Regional Office
25 E. Algonquin Road
Des Plaines, IL 60017 5017
USA

Toll Free: 866 414 City (2489)
Fax: +1 84 7391 3955

City Technology Limited

Shanghai Representative Office
23F Tower B, City Center
100 Zun Yi Road
Shanghai 200051
China

Tel: +86 21 6237 0237
Fax: +86 21 6237 0237

Important Information Regarding the Use of Sensors 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.

Supplementary information regarding the storage, handling, integration and calibration of sensors can be found at www.citytech.com

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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.[illegible]

