



Emissions

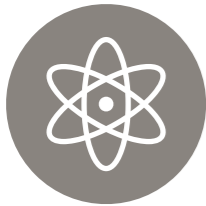
**Sensor
Range**



Emissions Sensors

Introducing DD-Scientific's new range of high performance electrochemical sensors designed to meet the challenges of industrial flue gas monitoring. Our sensors are optimised for the unique demands of this market, boasting highly poison resistant and active catalysts combined with large electrolyte reservoirs and high capacity filters. Our sensors are also designed to meet the statutory performance requirements of EN50379 Parts 1,2 and 3.

Key Aspects



S+50X is a premium, high performance oxygen sensor designed for the toughest emissions environments.



GS+A5CO is a four electrode, hydrogen immune carbon monoxide sensor optimised for the strictest requirements of EN50379 Part 1.



GS+A4CO is an innovative four electrode carbon monoxide sensor in a miniature format, also compliant with EN50379 Part 1.



S+20X is a high output, flue gas oxygen sensor designed to cope with hot, wet, dirty exhaust gases.



S+AOX is a fast response, partial pressure oxygen sensor optimised for the rigours of measurement in automotive exhausts.



Performance Data - Carbon Monoxide



Part Number	GS+A4CO	GS+A4COF	GS+A7CO	GS+A7COF	GS+A5CO
Output Signal / nA/ppm	70 ± 20	60 ± 20	100 ± 20	50 ± 20	75 ± 25
Typical Baseline Range (pure air) / ppm equivalent	± 2	± 2	± 2	± 5	± 5
Filter Capacity / ppm hours	Charcoal	>30,000 acid gas	Charcoal	> 50,000 acid gas	>100,000 acid gas
T90 Response Time / seconds	< 30	< 40	< 30	< 40	< 40
Measurement Range / ppm	0 - 2000	0 - 5000	0 - 2000	0 - 4000	0 - 4000
Maximum Overload / ppm	5000	10,000	4000	6000	10,000
H2 Compensated ?	Yes	Yes	Yes	Yes	Yes
Repeatability / CO equivalent	< ±2%	< ±3%	< ±1%	< ±3%	< ±2%
Recommended Load Resistor / ohms	10	10	10	10	10
Resolution / ppm typical	< 1	< 1	< 1	< 2	< 1
Environmental Details					
Temperature Range Continuous	-30°C to +50°C				
Pressure Range	800 to 1200 mbar				
Operating Humidity Range	15% to 90% RH				
Lifetime Details					
Long Term output Drift / per year	< 5%	< 5%	< 5%	< 10%	< 5%
Recommended Storage Temp / °C	0°C to 20°C	0°C to 20°C	0°C to 20°C	0°C to 20°C	0°C to 20°C
Expected Operating Life / months in air	> 24	> 24	> 24	> 24	> 24
Standard Warranty / months	24	24	24	24	24

Important Note:

All performance data is based on conditions at 20°C, 50%RH and 1 atm, using DD Scientific recommended circuitry and flow rates. Performance characteristics outline the performance of sensors supplied within the first 3 months. Output signal can drift below the lower limit over time.

Sensor performance is temperature dependent, and please contact DD Scientific for temperature performance other than 20°C.

Performance Data - Oxygen



Part Number	S+50X	S+40XLF	S+20X	S+AOX
Output Signal in Air	0.41 ± 0.05 mA	0.10 ± 0.03 mA	0.41 ± 0.07 mA	0-13 mV
Zero Current (% vol O ₂)	<0.3%	<0.5% (<0.3% typical)	<0.3%	<20 μV
T90 Response Time (secs)	< 10	< 10	< 10	< 5
Measurement Range	0-25%	0-25%	0-25%	0-100%
Operating Principle	Lead based	Lead free	Lead based	Lead based, partial pressure
Maximum Overload	30%	30%	30%	100%
Warm Up Time	Instant if shorted	5 minutes	Instant if shorted	Instant
Electrical Bias Voltage	n/a	-600 ± 10mV	n/a	n/a
Operating Humidity Range	0% to 99% non condensing	15%-90% non condensing	0% to 99% non condensing	0% to 99% non condensing
Environmental Details				
Temperature Range Continuous	-30°C to +50°C			
Pressure Range	800 to 1200 mbar			
Lifetime Details				
Long Term output Drift / per year	< 5%	< 5% over life	< 5%	< 10% (in 100% O ₂)
Recommended Storage Temp / °C	0°C to 20°C	0°C to 20°C	0°C to 20°C	0°C to 20°C
Expected Operating Life / months in air	> 24	> 60	> 24	> 24 (air at STP)
Standard Warranty / months	24	36	24	24

Important Note:

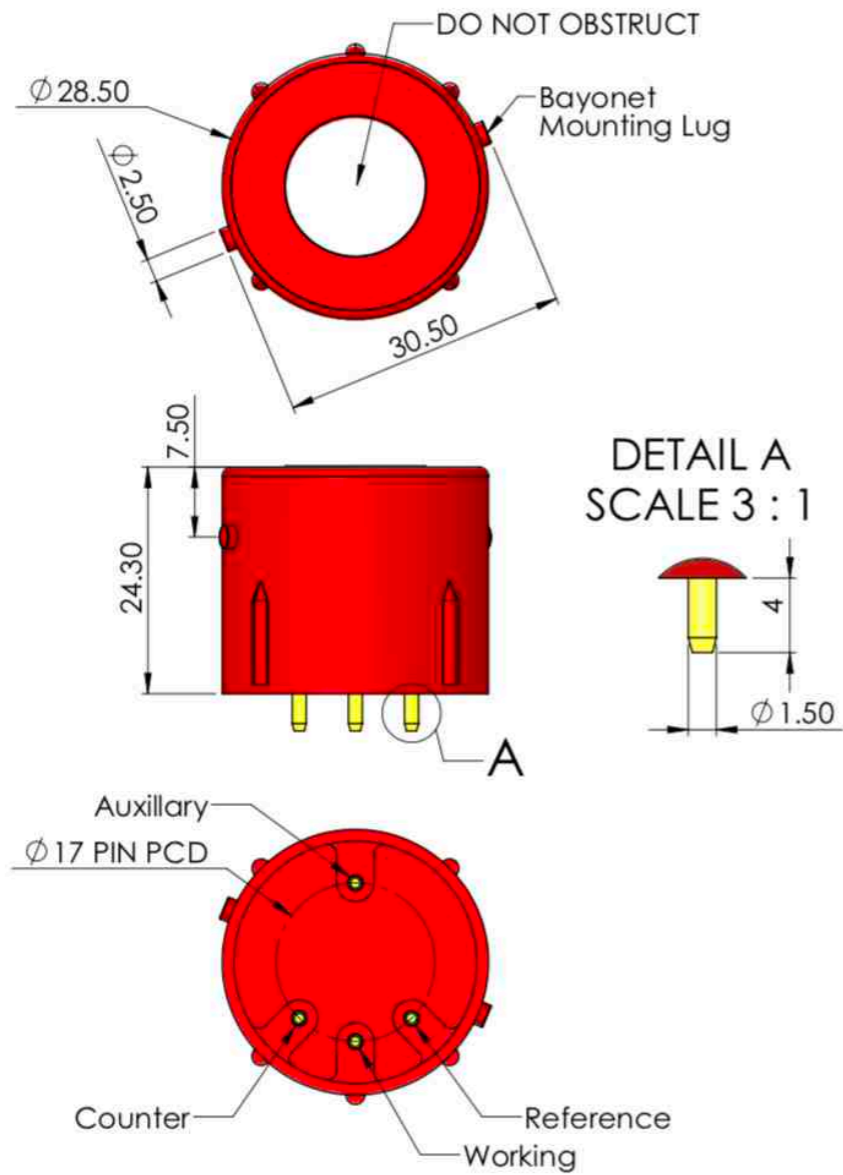
All performance data is based on conditions at 20°C, 50%RH and 1 atm, using DD Scientific recommended circuitry and flow rates. Performance characteristics outline the performance of sensors supplied within the first 3 months. Output signal can drift below the lower limit over time.

Sensor performance is temperature dependent, and please contact DD Scientific for temperature performance other than 20°C.

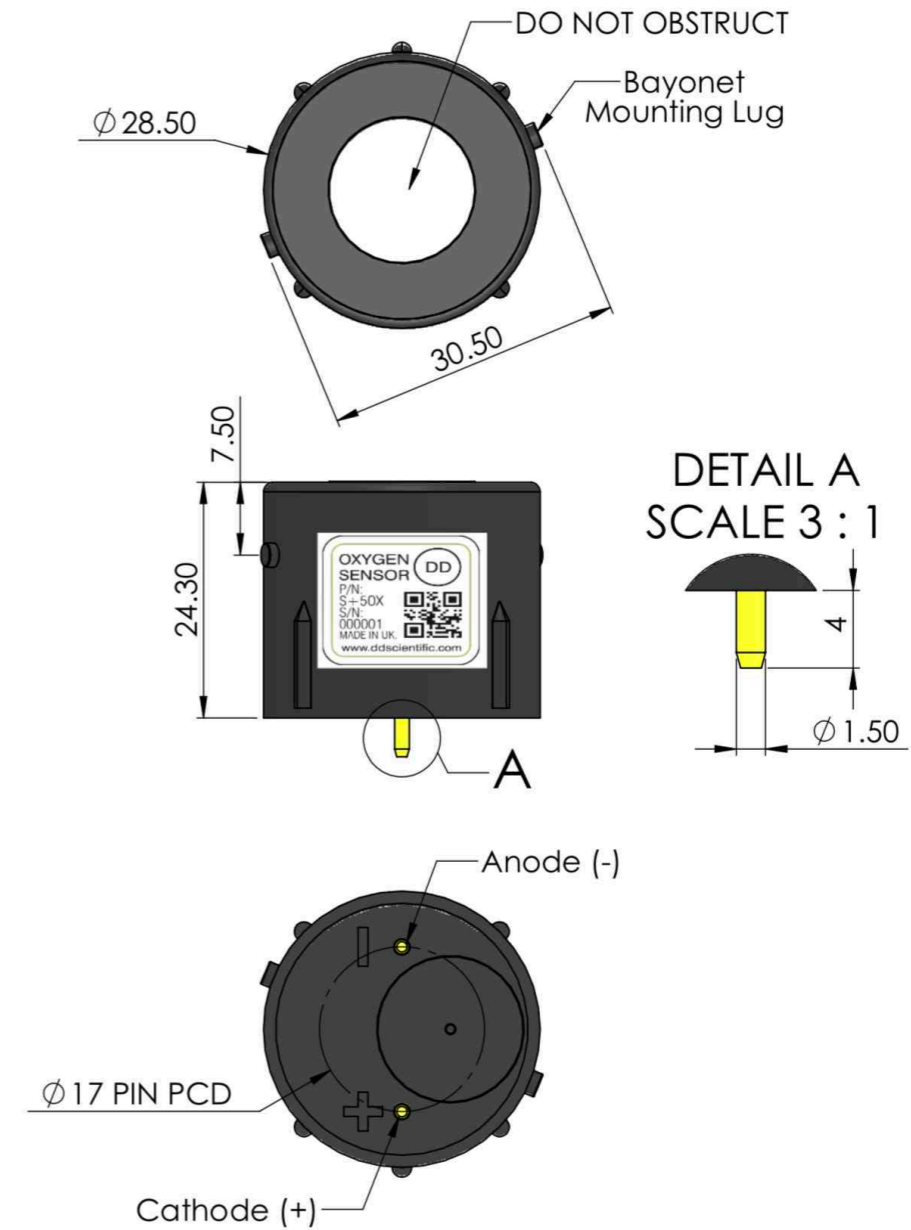
Product Dimensions

All dimensions in mm, all tolerances ± 0.15 mm

GS+A5CO



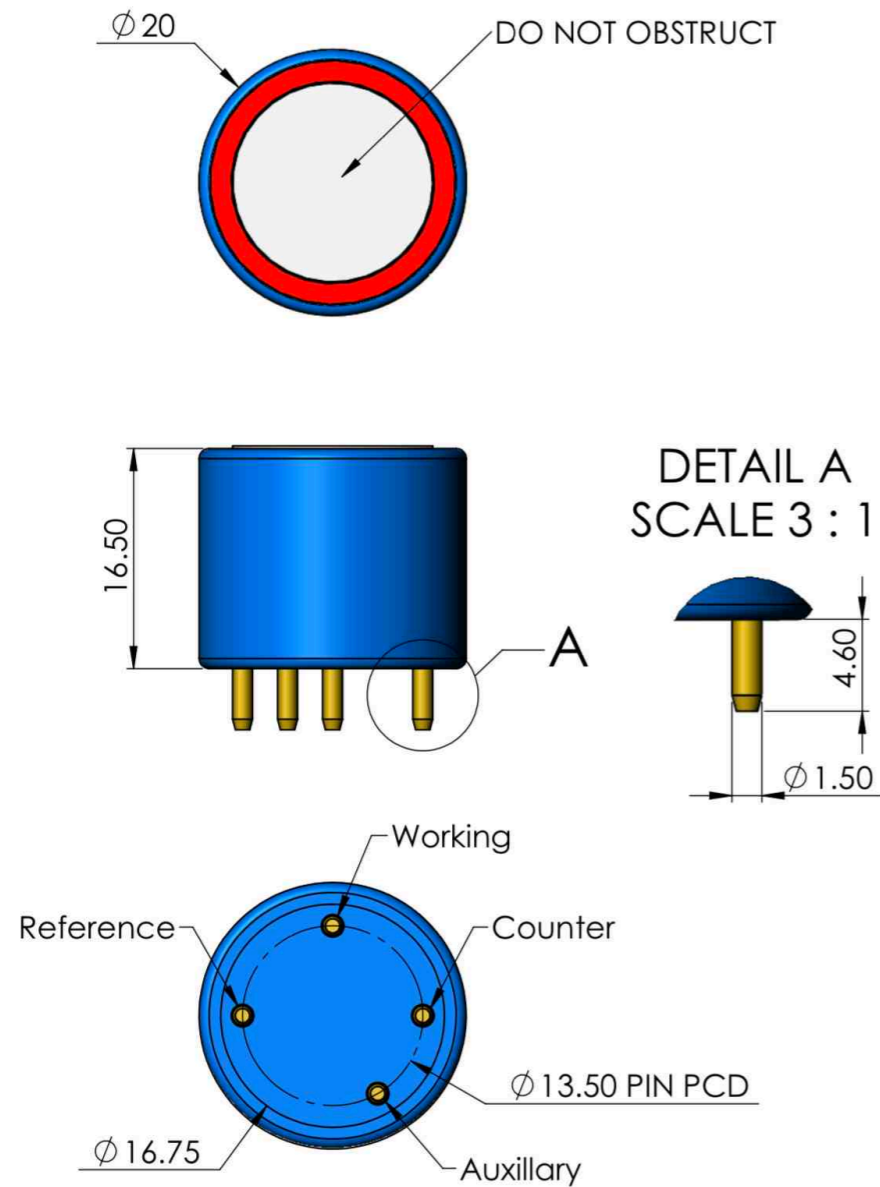
S+50X



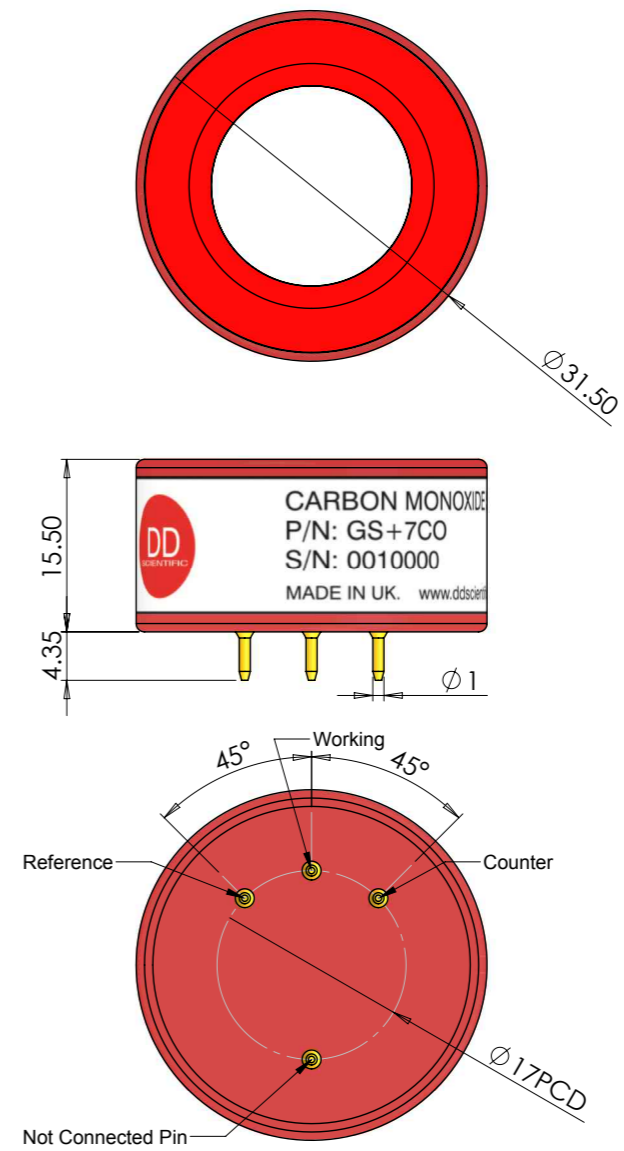
Product Dimensions

All dimensions in mm, all tolerances ± 0.15 mm

GS+A4CO / GS+A4COF



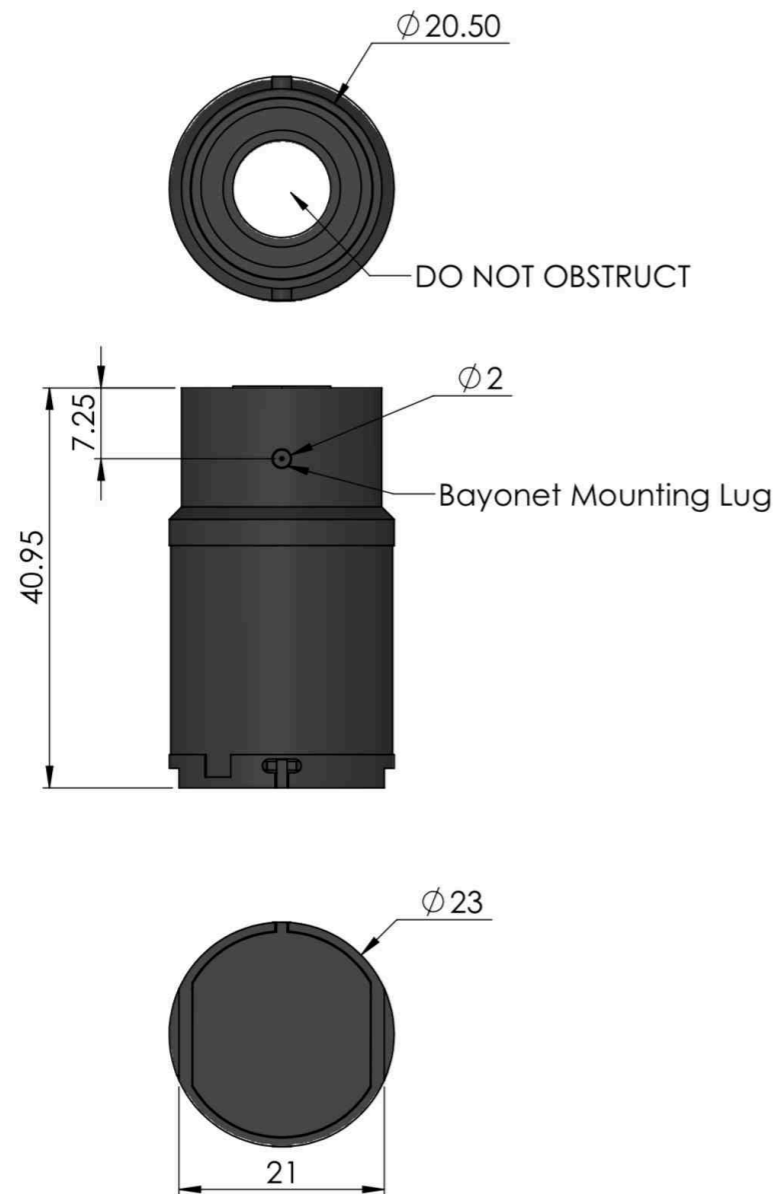
GS+A7CO / GS+A7COF



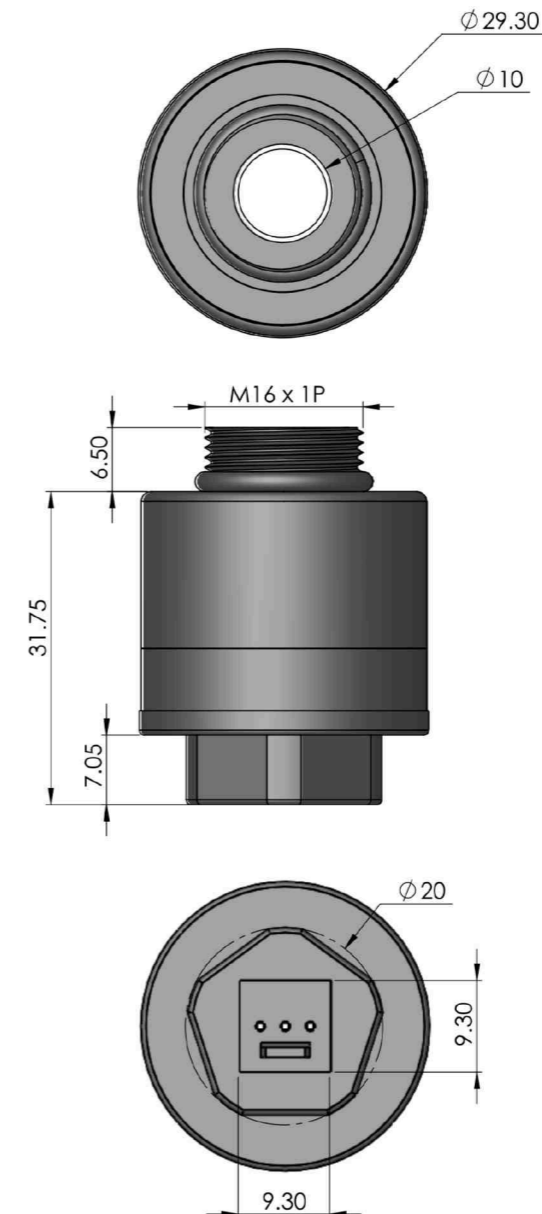
Product Dimensions

All dimensions in mm, all tolerances ± 0.15 mm

S+20X



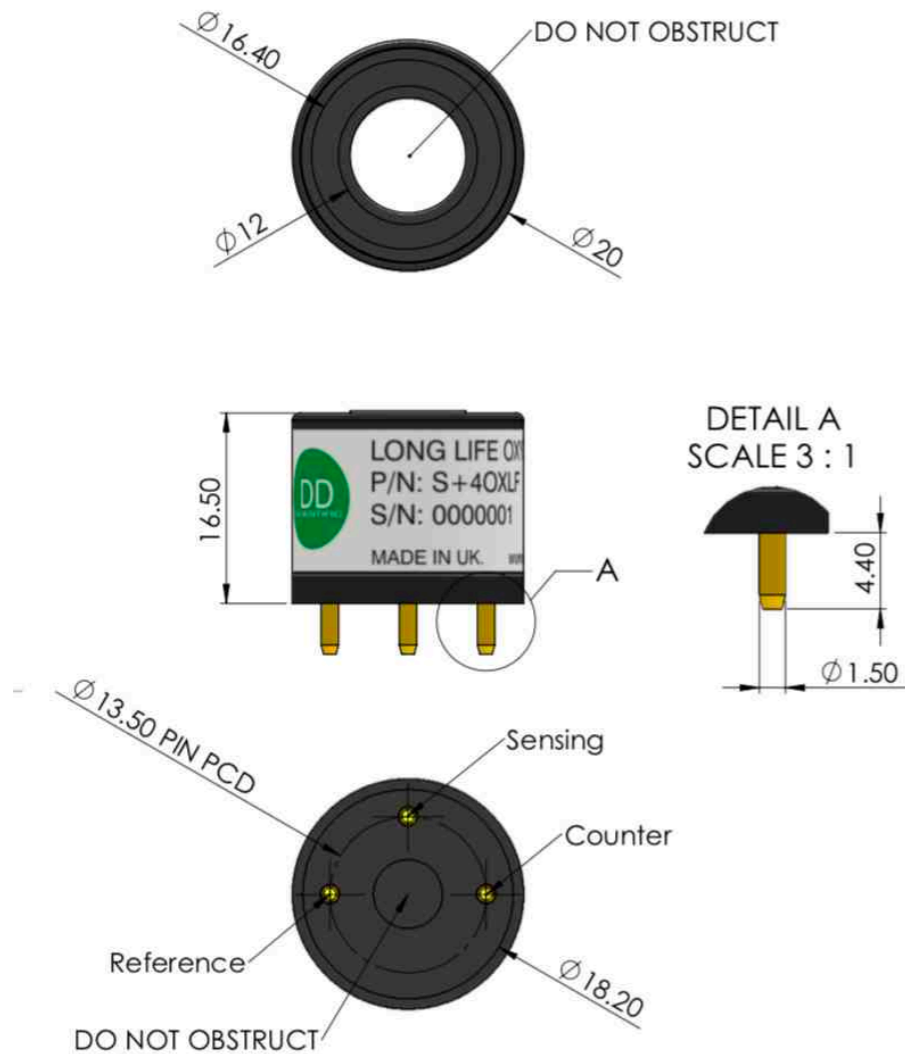
S+AOX



Product Dimensions

All dimensions in mm, all tolerances ± 0.15 mm

S+40XLF



Please note gluing or soldering direct to the pins of DD Scientific Ltd gas sensors will void warranty, please use PCB sockets when connecting DD Scientific sensors.

Intrinsic Safety Data

Maximum at 2000 ppm	0.3 mA
Maximum o/c Voltage	1.3 V
Maximum s/c Current	<1.0 A

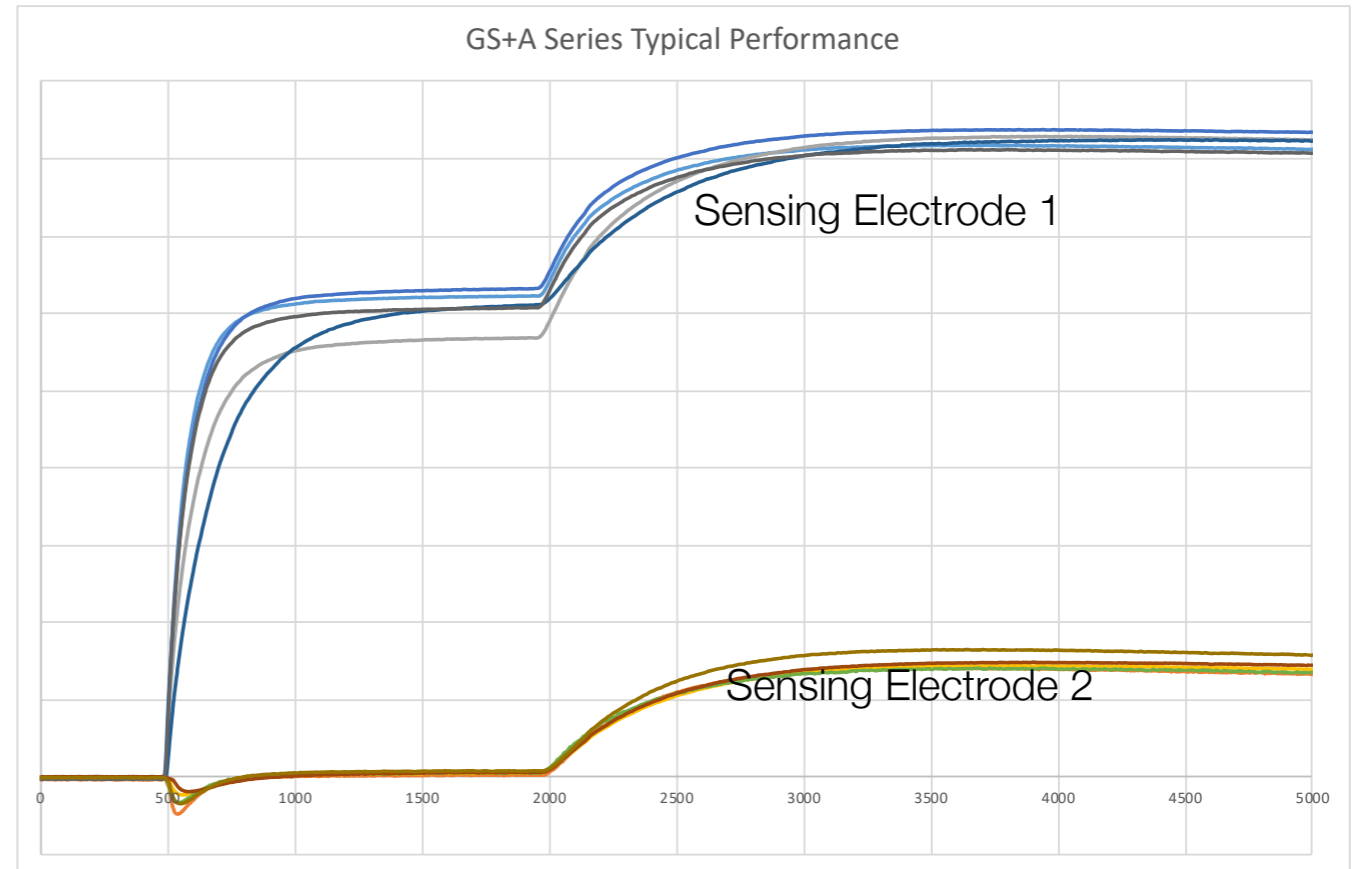


GS+A Series

The GS+A Series is a range of very high performance carbon monoxide sensors optimised for the measurement of flue gas containing high levels of CO, where H₂ may also be present. The sensors contain 2 sensing electrodes; 1 which measures both CO and H₂ and one which measures only H₂. By subtraction, the concentration of both gases can be calculated. The sensors are available in 4, 5 and 7 Series packages and both 4 and 7 Series are available in light or heavy filtered versions.

The sensors meets all requirements outlined in:

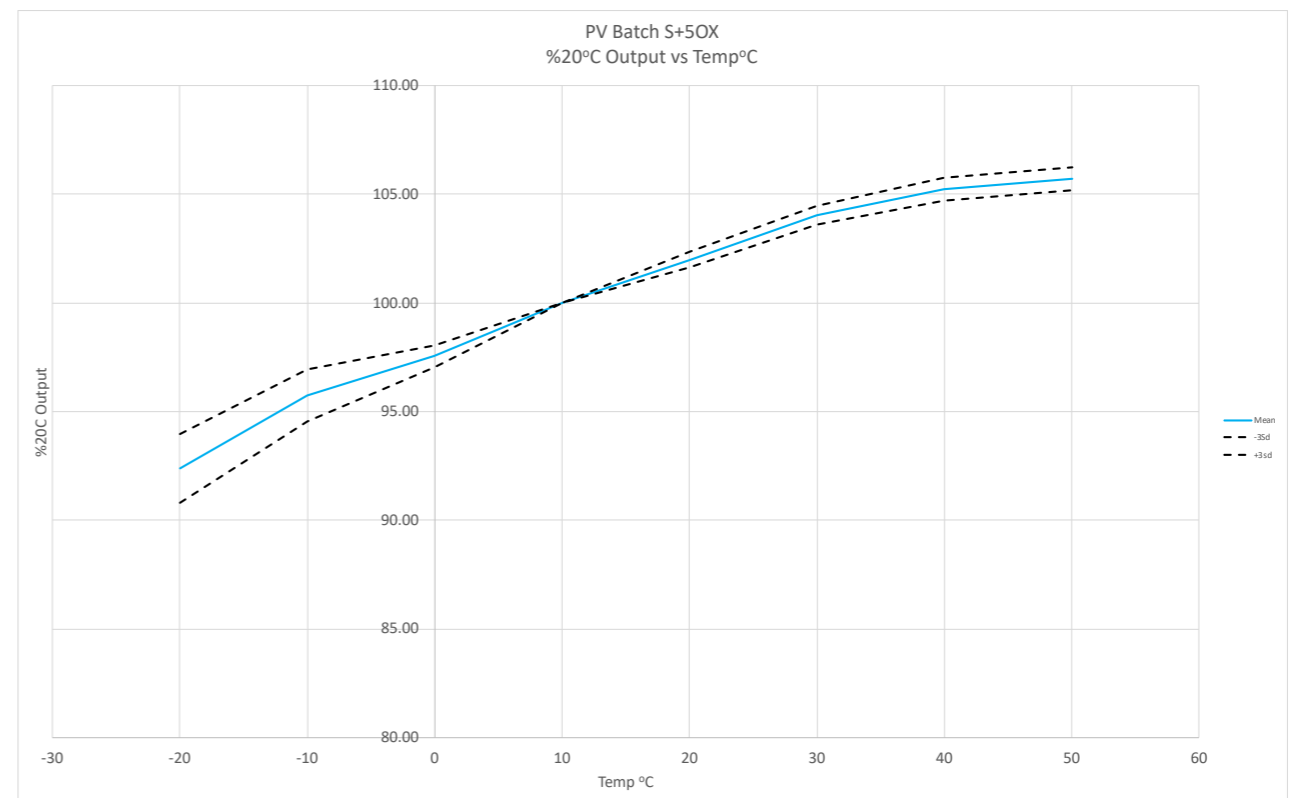
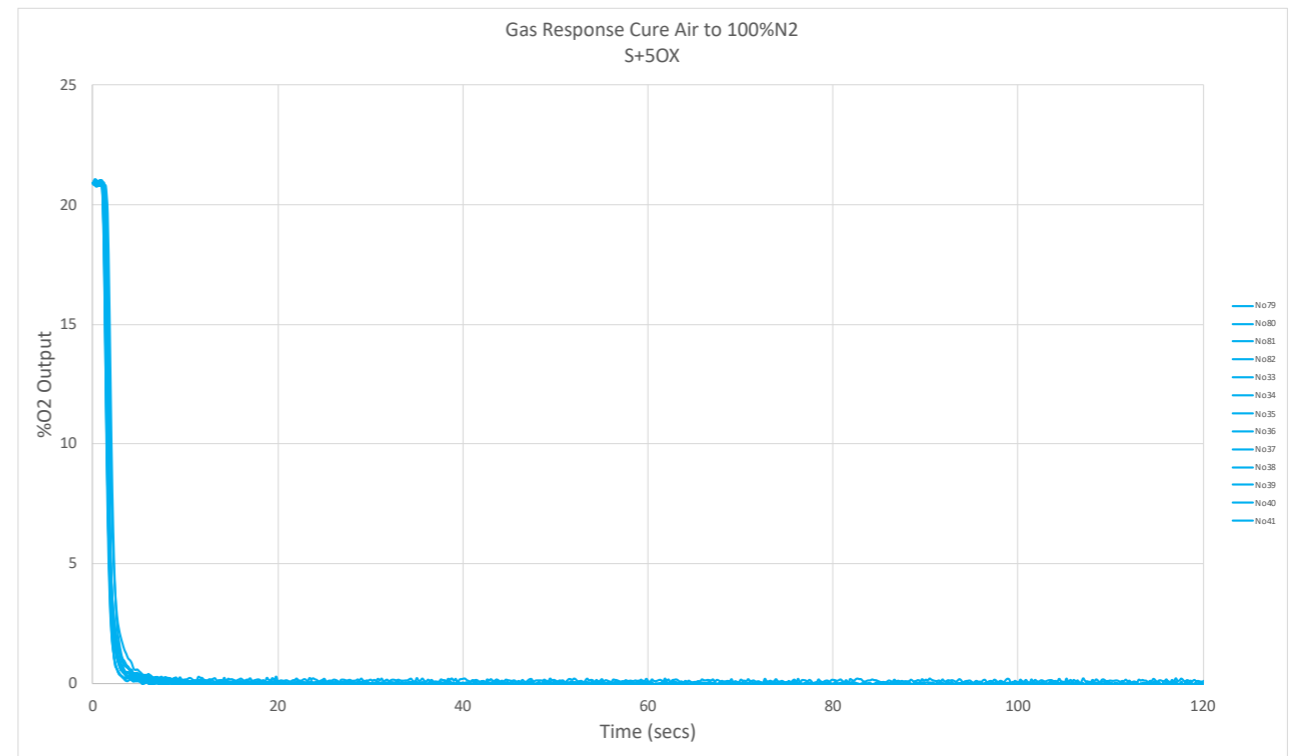
EN50379 Parts 1,2 and 3



The above traces demonstrate the performance of the GS+A Series sensors when exposed sequentially to;

- 1000 ppm CO followed by;
- 1000 ppm CO, 800 ppm H₂

It can be seen that Sensing Electrode 1 responds to both gases, Sensing Electrode 2 response only to H₂ with virtually no response to H₂. By understanding the ratio of these sensitivities, the instrument manufacturer can determine the both the concentration of CO and H₂ independently.



S+50X O₂ sensor

The S+50X sensor is a heavy duty sensor designed for the measurement of O₂ in flue gas applications. It is pin and package compatible with the industry standard 5 Series and provides reliable sensing in the dirtiest of environments. Its electrolyte reservoir is optimised to cope with the challenging humidity conditions of this application and its high activity catalysts will provide very low drift and fast response times throughout its working lifetime.

Emissions Sensors

DD-Scientific offer a wide range of sensors optimised for the rigorous demands of monitoring flue gas.

As the fastest growing electrochemical sensor manufacturer, we are committed to providing high performance, high quality products at competitive prices with unbeaten commercial and technical support.



www.ddscientific.com