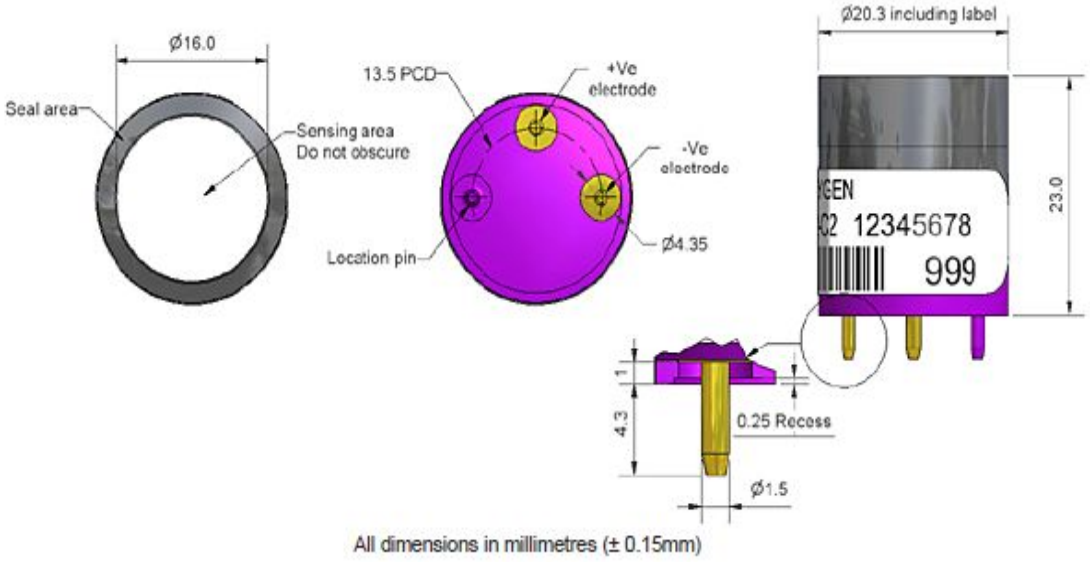
O2-C2 Oxygen Sensor

Figure 1 Schematic Diagram of O2-C2



vertical view upward view lateral view

The O2-C2 sensor (patent application) has been made of flue gas protection, which is a necessary condition to ensure the long service life of the sensor.

function		
output	Output(μA) $_2$ in 20.9%O	80~120
reaction time	From 20 % to 0%O $_2$ at t90 time(s)	< 50
zero current	Output in N $_2$ (μ A)	< 2.5
degree of linearity	10%O $_2$ deviation percentage of oxygen	-0.6
life span		
Output drift	Change percentage over 3 months	< 1
working life	Output down to 20.9% Number of months $_O$ original output 85%	> 24
environment		
Humidity sensitivity	Oxygen change percentage: 0~95%RH,40°C	< 0.7
CO_2 sensitivity	5% CO_2, percentage change in oxygen reading/CO_2 concentration	0.1
Pressure sensitivity	20kPa, percentage change in output/pressure	< 0.1
key parameter		
temperature range	℃	-30~55
pressure limit	kPa	80~120
Humidity range	Continuous relative humidity percentage (0-99% RH in the short term)	5~95
Storage period	Number of months for preservation from 3 to 20℃ (must be preserved in a sealed tank, open circuit)	6
load resistance	Ω (recommend)	47~100
weight	g	< 18

Figure 2. Temperature Characteristics of the Sensor in Air

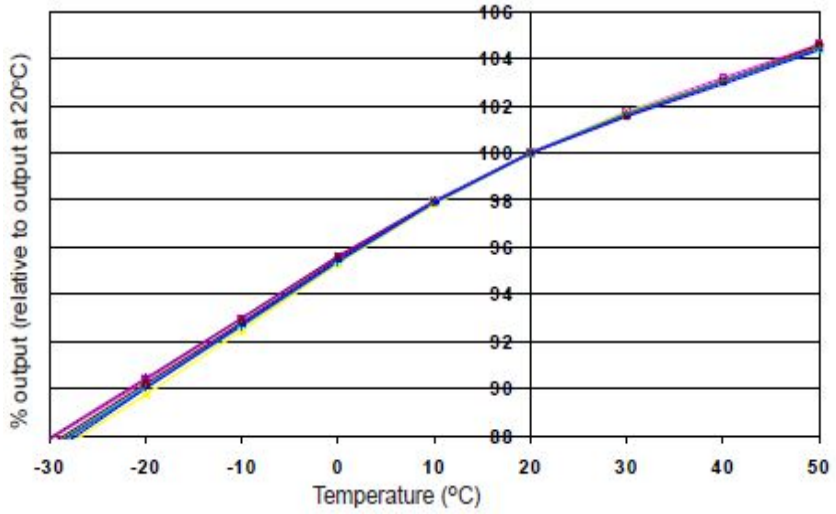
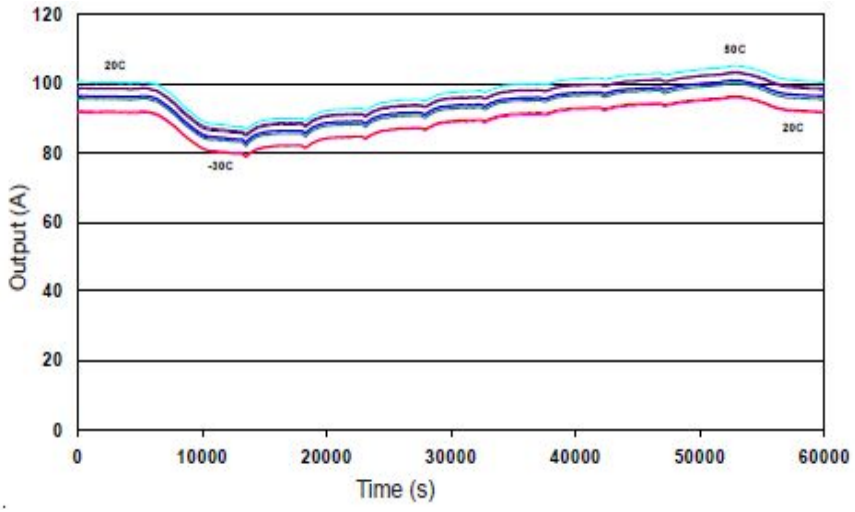


Figure 2 shows the very consistent sensitivity changes in the sensor caused by temperature changes.

Data was collected from typical batch sensors.

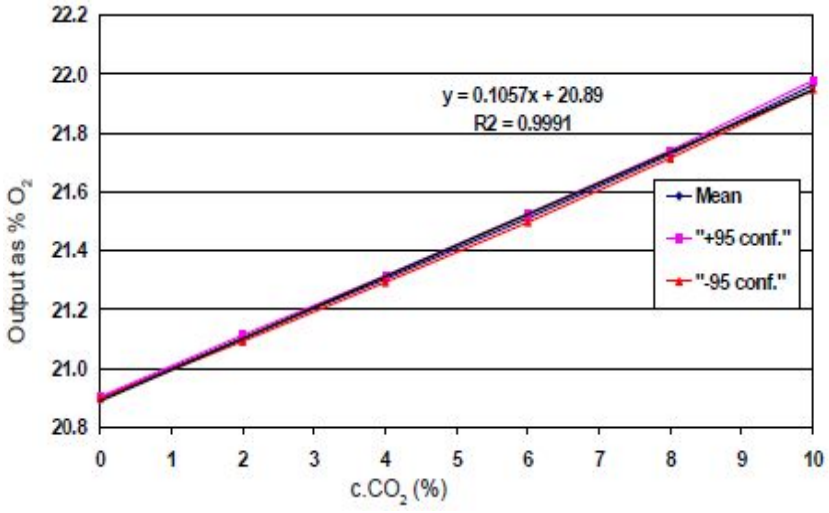
FIG. 3 Thermal Transient Performance



The Time Tracker Shows Eight transducers were cooled to -30℃, then gradually heated to +50℃, and finally back to the 20 ℃ reaction process.

O2-C2 does not produce temperature spikes when experiencing rapid temperature changes, which will avoid false alarms from the sensor. The sensor performance remains stable even if the temperature drops from 20℃ to-30℃.

Figure 4 Reaction of Carbon Dioxide



Carbon dioxide increases the diffusion rate of oxygen and increases the apparent oxygen concentration.

When the carbon dioxide stays stable, it causes an increase in the oxygen signal of 10.6 percent in $_{CO2}$ concentration.

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