The miniaturization of gas sensors has allowed their introduction to consumer applications and their manufacture in large volumes. Technological choices and how manufacturers integrate components makes it possible to know which markets and performance levels they target.

System Plus Consulting has reviewed four different gas sensors from three manufacturers. We analyze and compare the AS-MLV-P2 and the CCS801 from ams, the BME680 from Bosch and the SGP30 from Sensirion. We provide insights into their structure, technical choices, design, processes, supply chain positions and costs.

Coming from industrial applications, ams’ Applied Sensor unit uses technologies that are reliable, robust, accurate and mature. Meanwhile, ams’ Cambridge CMOS Sensor subsidiary uses some of the latest technologies developed for the MEMS microphones to miniaturize devices.

The BME680 environmental sensor can detect a broad range of gases, including volatile organic compounds, using a smaller gas sensor die compared to competitor companies like ams and Sensirion.

SGP30 is Sensirion’s first multi-gas sensor. To reduce the component size, Sensirion placed the gas sensor above the application-specific integrated circuit (ASIC) and packaged it with the same molding compound, reducing the number of bonding processes, and increasing signal-to-noise ratio.

This report includes an analysis of the packaging and the sensor die along with a cost analysis for all devices. Finally, we compare devices to highlight their manufacturers’ technical choices.
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LINKED REPORT

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