

# Indoor Air-Pollution Detector Using Tin-Oxide Gas Sensor

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A trial indoor air-pollution detector is manufactured using a tin-oxide gas sensor. Indoor air pollutants include not only carbon dioxide and carbon monoxide but also nitrogen oxides, sulfur oxides and formaldehyde which are gases hazardous to human health. In this study, the daily pollution level is adopted as a standard level, which is a mean value of levels for the previous 3 weeks with measurements being made at the same time on the same day of the week. The seasonal fluctuations of gas sensor output are fairly well canceled out in this manner. Indoor air pollution is calculated every 20 minutes by comparing the mean value with the sensor output. A method is newly proposed for detecting current complex indoor air pollution.

## 1. Introduction

The structures of houses and buildings are changing to airtight architecture with the change in social framework, and the space occupancy rate of a single person is decreasing. Also, energy sources for room heating have changed from charcoal, firewood and coal to kerosene and propane gas. Indoor air quality is becoming worse. Consequently, it is necessary to make efforts to maintain a good level of indoor air quality (IAQ) and improve the indoor environment from the standpoint of human health. New guidelines must be proposed, including new standards for IAQ, which, in Japan, have up to now been based on carbon dioxide gas concentration.