

Supplementary Materials

This part includes Table S1: The Details of XL68 Equipment.

Table S1. The Details of XL68 Equipment.

Categorize	Principle	Range	Accuracy	Resolution	
XL68 *	The operation principle of the equipment is passive diffusion sampling through the integrated multi-channel sensor in the fuselage, that is, the air was detected by sensors through free diffusion. Through laser irradiation or electrochemical reaction, the current signal is generated and transmitted to the microcomputer to obtain the concentration information. Its advantages are simple operation, little interference to the surrounding environment, and continuous sampling for a long time.	-	-	-	
Sensors	PM2.5	Laser principle: a uniform laser light source is used to irradiate the laser onto aerosol particles to generate light scattering effect, and the scattered light within a certain range is detected. The signal collected by the optical detector is processed to obtain information about the number and size of aerosol particles.	0~1000 μg/m ³	±10 μg/m ³	1 μg/m ³
	CO	Electrochemical principle: Oxidation of CO and H ₂ O into CO ₂ and H ⁺ , thus generating a current signal, through the sensor detection signal to obtain the concentration of CO.	0–20 ppm	±2% FS	1PP m
	Temperature and Humidity	Electronic sensing principle and ultrasonic principle: the change of different meteorological elements into the corresponding change of electrical signals, after pretreatment to obtain the real time value of each meteorological element.	Temperature: -40~120 °C	±0.3 °C	0.1 °C
			Humidity: 0-100% RH	±3% RH	1% RH
	Anemometer		Wind speed: 0~60m/s Wind direction: 0~359.9°	±3%	m/s 0.1°

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