



Applications & Features

- IAQW/IAQD are especially designed for detect various air contaminants(VOCs) in air contents including wood, paint and others produced by toluene, cigarette, ammonia odor, CO, alcohol, natural gas and even body smell. While IAQFW/IAQFD are specific only for CH₂O in air
- IAQW/IAQFW are for room and IAQD/IAQFD are for duct mount, light and state of art housing, easy installation
- IAQW/IAQD use high sensitive metal oxide semiconductor gas sensor, with up to 5~7 years sensor life
- IAQFW/IAQFD use high performance electrochemical gas sensor, with more than 3 years sensor life
- All sensors are low power consumption with good temperature and humidity compensation
- Power and outputs have over voltage and reverse polarity protection, high reliability and anti-interference capability
- All electrical terminals are on the inside bottom, avoid any possible destroy to PCB when wiring(IAQW/IAQFW)
- Special designed bright multi-color light bar, indicating different air quality status(IAQW/IAQFW)

Specifications

Sensor: VOC: High performance metal oxide semiconductor sensor
CH₂O: High performance electrochemical sensor
Power: 16~28VAC/16~35VDC
Range: VOC: 0~2000ppm equivalent CO₂; CH₂O: 0~1000ppb
Accuracy: CH₂O: ±10%FS@25°C
Output: 0~10VDC/4~20mA (default), RS485/Modbus
Display (IAQW/IAQFW): Optional LED green/yellow/red air quality indication; Or optional LCD display with unit and green/yellow/red backlight
Load resistance: ≤500Ω (Current output), ≥2kΩ (Voltage output)
Relay: 1×SPST, 3A/30VDC, 3A/250VAC
Warm up time: 15 min
Working environment: 0~50°C, 0~95%RH (Non-cond.)
Storage temperature: -20~60°C
Housing: ABS+PC (IAQW/IAQFW), fireproof ABS (IAQD/IAQFD)
Protection: IP30 (IAQW/IAQFW), IP65 (IAQD/IAQFD)
Weight: IAQW/IAQFW:190g, IAQD/IAQFD:395g
Approval: CE

Models

Model	IAQW IAQD IAQFW IAQFD			Room VOC transmitter/controller Duct mount VOC transmitter/controller Room CH ₂ O transmitter/controller Duct mount CH ₂ O transmitter/controller
Trans./Com. Output		0 1 8		N/A 4~20mA/0~10VDC RS485/Modbus
Relay Output			0 1	N/A 1*SPST
Display (IAQW)			0 1 2	N/A LED, Green/Yellow/Red LCD, with G/Y/R backlight

The 3 options should not be "0" at the same time.

Note:

1. VOC is a general term for all kinds of Volatile Organic Compounds, which may include over a thousand kinds of component. The most common are benzene, toluene and xylene, ethyl benzene, styrene, formaldehyde, TVOC (6-16 carbon alkanes, ketones). These compounds are widely used in footwear, toys, paints and inks, adhesives, cosmetics, indoor and automotive decorative materials and other industrial fields. VOC has a great impact on human health, may affect the human liver, kidney, brain and nervous system, resulting in memory loss and other serious consequences, and even cause cancer. Outdoor VOC comes mainly from the combustion of fuel and transport. Indoor VOC comes mainly from coal and natural gas combustion products, smoking, heating and cooking, building and decoration materials, furniture, household appliances, cleaning agents and human body discharge.
2. The VOC sensor could detect varies of VOC components. VOC measurement range 0~1000ppb (isobutene), equivalent to 400~2000ppm of carbon dioxide. Its 0~10V/4~20mA output is equivalent to CO₂ concentration of 0~2000ppm, with good long term stability, consistency and repeatability <10%
3. The CH₂O sensor could detect Formaldehyde of 0~1000ppb.
4. Researches show that exposed to 0.5~1.0 ppm VOC concentration environment have little impact on most people health; exposed to 1.0~10 ppm VOC concentration environment have obvious eyes, skin, nose, mouth and throat irritation symptoms on human and cancer rates rise 50% to 90%; exposed to the VOC concentration above 10 ppm may have serious impact on human health or life threatening.
5. GB/T18883 and GB50325 IAQ regulations specified the average 8 hours TVOC limit 0.50~0.60 mg/m³ (equivalent to about 500 ppb) and CH₂O limit 0.08~0.10 mg/m³ (equivalent to about 60-75 ppb).

VOC concentration guidelines and recommendations

(Mainly refer formaldehyde for reference)

Source	Concentration	Associated Period of Exposure	Health Effect(s)
Based on sensory irritation			
California Environmental Protection Agency (EPA)	44 ppb	1 hour	Eye and airway irritation
Health Canada	100 ppb	1 hour	Eye irritation
National Institute for Occupational Safety and Health	100 ppb	15 minute	
Occupational Safety and Health administration	750 ppb	8-hour PEL-TWA	Cancer and skin/eye/respiratory irritation
World Health Organization	81 ppb	30 minute	Sensory irritation
World Health Organization	100 ppb	short-and long- term	Sensory irritation
Based on respiratory and asthma-like symptoms			
Agency for Toxic Substance and Disease Registry	40 ppb 30 ppb 8 ppb	Daily:1-14 days 15-364 days > 1 year	Respiratory
California EPA	7 ppb 7 ppb	8-hour annual average	Respiratory symptoms Respiratory symptoms
Health Canada	40 ppb (target)	8 hour	Respiratory symptoms in children
Based on cancer risk			
National Institute for Occupational Safety and Health	16 ppb	8 hour	Nasal cancer
Occupational Safety and Health administration	750 ppb	8-hour PEL-TWA	Cancer and skin/eye/respiratory irritation
World Health Organization	100 ppb	Long-term	Nasal cancer