

PRODUCT SPECIFICATION

Product Name: Electrochemical Formaldehyde Sensor

Product Model: CB-HCHO-02

Version: V0.4

Date: 2018-8-6

Writer	Audit	Approved
Mei Yang		

Revision

No.	Version	Content	Reviser	Date
1	V0.1	Original Version Issued	Mei Yang	2018-6-20
2	V0.2	1. Product appearance modification. 2. The command number "0x01" of the query command in the communication protocol is corrected to "0x02". 3. Product appearance dimension drawing increases positioning hole size.	Mei Yang	2018-6-26
3	V0.3	1. Modification of pin map picture	Chang Cheng	2018-7-5
4	V0.4	1. Modified the size from "W25.5*H23*D10" to "W25.5*H23*D8.6" 2. Modified the product picture.	Mei Yang	2018-8-6

Formaldehyde Sensor Module

CB-HCHO-02



Description

CB-HCHO-02 is a gas concentration sensor which integrates both electrochemical and semiconductor modes. The electrochemical module is the main module with adopting the unique electrolyte packaging technology, built-in high-performance analog circuitry and data processing unit, integrating many empirical algorithms. Semiconductor module is a sub-module, mainly for increasing the overall speed of the sensor, also using the output signal and the corresponding algorithm to correct the data of the main module. At the same time, the sensor is also compatible with the TVOC calibration curve, which can simultaneously output TVOC values.

Working principle

When formaldehyde gas passes through the sensor, the formaldehyde molecules undergo oxidation-reduction reaction on the electrode to form an electron transfer under the catalytic action of the electrolyte. This reaction produces a small current, which is proportional to the concentration of the gas present and output the serial signal through the signal amplifying circuit.

The VOC series air quality modules use advanced semiconductor gas sensors. The sensor has extremely high sensitivity to organic volatile gases such as formaldehyde, benzene, carbon monoxide, ammonia, hydrogen, alcohol, and cigarette smoke. After aging, debugging and calibration, the module has good consistency and high sensitivity.

Features

- ◇ Mutual check with dual mode, more accurate
- ◇ Accurate detection for the low measurement range, good consistency.
- ◇ Can also output TVOC value.
- ◇ Low power consumption, strong anti-interference ability
- ◇ Plug and play, no need to warm up
- ◇ Multi-installation and fixing methods

Applications

- ◇ Portable instrument
- ◇ Desktop air quality monitoring equipment
- ◇ HVAC system, air purifier, air conditioning
- ◇ Smart home

Table 1 Specifications

Electrochemical formaldehyde sensor specifications	
Working principle	Electrochemistry, semiconductor
Measurement	0 ~ 3ppm
Measurement accuracy	0 ~ 0.2ppm: $\leq \pm 0.05\text{ppm}$; 0.2 ~ 1ppm: $\pm 30\%$ of reading ($25 \pm 2^\circ\text{C}$, $50 \pm 10\% \text{RH}$, PPM-HTV, Poly-formaldehyde powder)
Resolution	0.01ppm
Response time	$T_{90} < 30\text{s}$
Working	$-10 \sim 40^\circ\text{C}$, $10 \sim 90\% \text{RH}$ (Non-condensing)
Storage condition	-10°C , $\sim +60^\circ\text{C}$ $0 \sim 95\% \text{RH}$ (Non-condensing)
Working voltage	DC (+3.3V ~ +5.0V)
Working current	$< 20\text{mA}$
Signal output	UART_TTL (default 3.3V)
Zero drift (Clean)	$< 0.02\text{ppm}$
Size	$W25.5 * H23 * D8.6$
Life	3 year (Clean air)

Outline structure and interface definition

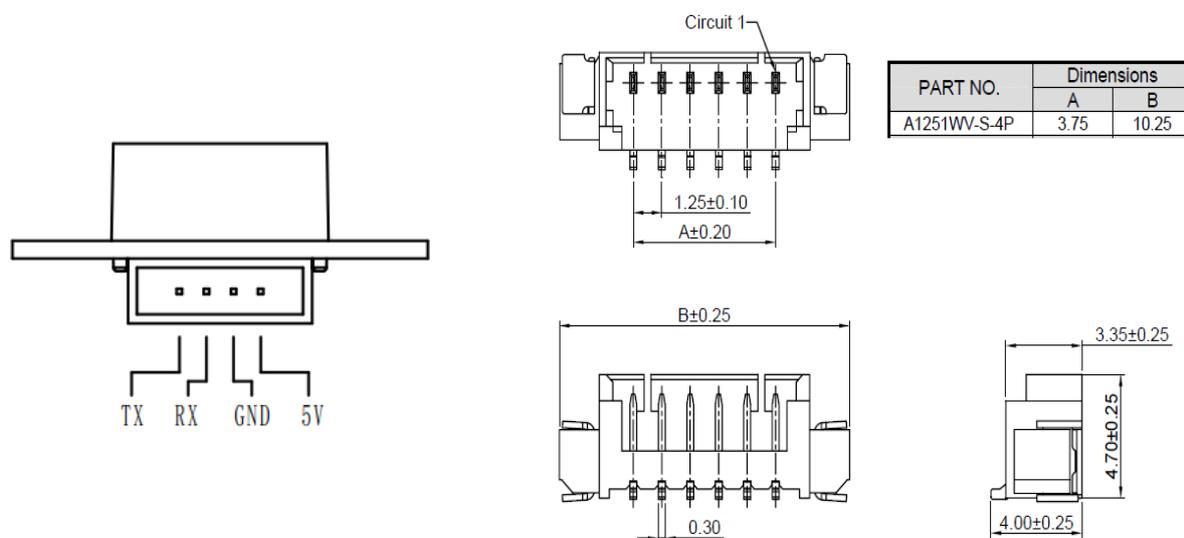


Figure 1: Interface and connector definition

Tablet 2: Pin definition table

No.	Pin	Description
1	+5V	Input power positive
2	GND	Input power negative
3	RX	Signal receiver
4	TX	Signal output

Tablet 3: Connector description

Model	Pin spacing
A1251WV-S-4P	1.25mm

Dimensions

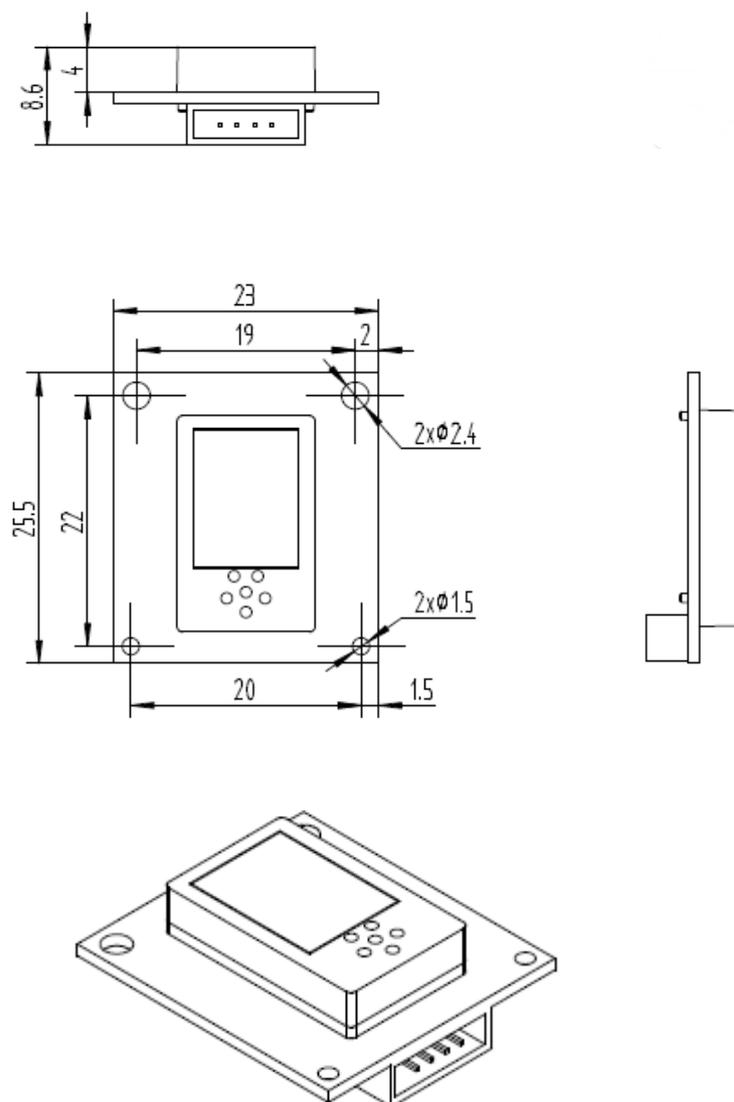
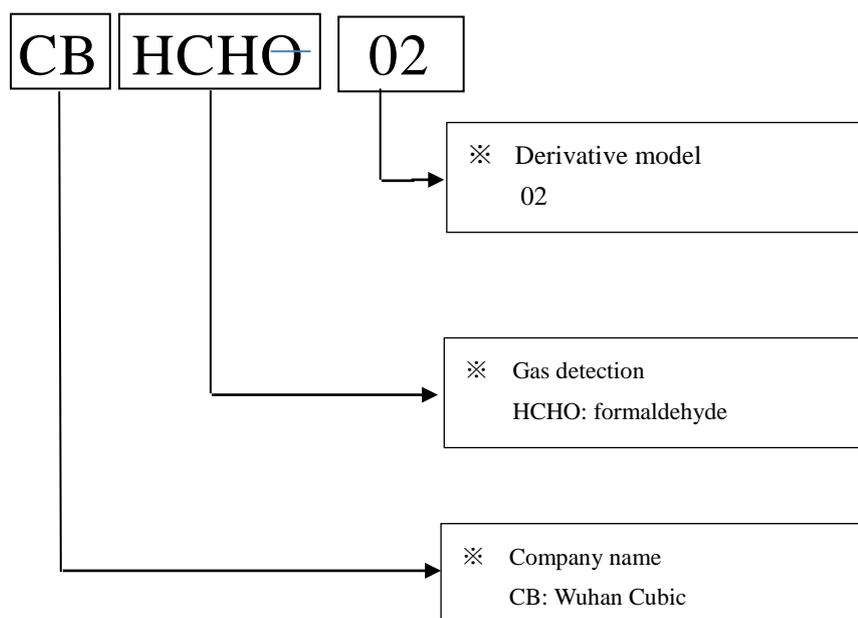
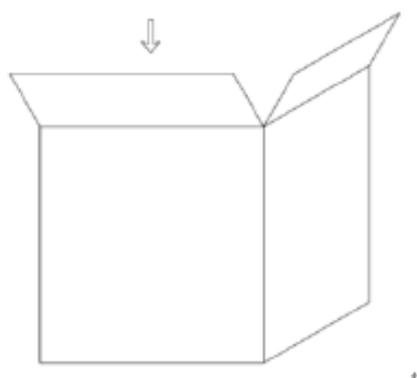
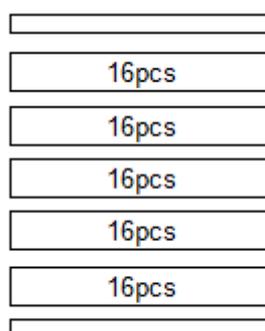


Figure 2: CB-HCHO-02 Appearance dimension drawing (unit mm, tolerance $\pm 0.2\text{mm}$)

Product code description



Packaging information



Tablet 4 Packing description

Qty per layer	Layer	Carton	Carton dimensions	Packing material
16pcs	14 Layers	224Pcs	W400 * L300 * H480 mm	PVC tray

Notice

- ※ Do not use this module in systems that related to personal safety.
- ※ Do not put the module for a long time in high concentrations of organic gases, or it is likely to cause damage to the sensor.
- ※ Do not install the module in a strong air convection environment.
- ※ Diffusion sampling, the air circulation of the measurement point should be ensured.
- ※ To ensure the measuring accuracy of formaldehyde, it should be avoid using in the environment of perfume, cooking wine and another alcohol-heavy environment.
- ※ In addition to formaldehyde, many other reactive gases will affect electrochemical formaldehyde sensors, mainly methanol, ethanol, toluene, xylene, carbon monoxide, hydrogen sulfide, etc.

After-sales services and consultancy

TEL: 86-27-8162 8827

ADD: Fenghuang No.3 Road, Fenghuang Industrial Park, Eastlake Hi-tech Development

Zip: 430205

Fax: 86-27-8740 1159

Website: <http://www.gassensor.com.cn>

E-mail: info@gassensor.com.cn