WZ-H3T-K Selective Formaldehyde Module

ProSense Technologies Co., Ltd.

Brief Introduction

WZ-H3T-K selective formaldehyde module combines selective HCHO sensor with advanced electronic control technology, converting HCHO concentration into PPM directly. WZ-H3T-K selective HCHO module is free from the influence of the interference gases, such as C_2H_5OH and can generate accurate detection result. WZ-H3T-K selective HCHO module is pre-calibrated in the factory and can be integrated into your system directly.

Typical Applications

Smart home

Portable devices

Wearable devices

Air conditioners

Air cleaners

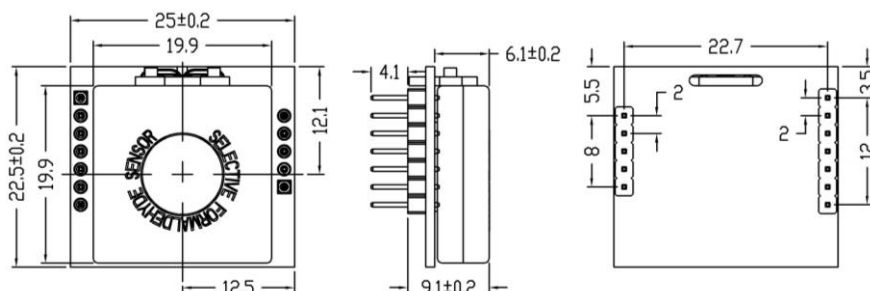... …

Key Features

Selective detection

High precision
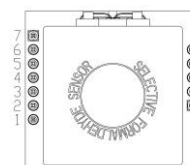
Fast response

Long service life

Low power consumption

High stability

Diagram

Definition of Pins

PIN	DEFINITION
Pin1	Vin(3.3 - 5V)
Pin2	GND
Pin6	T1
Pin7	R1

Technical Specification

MODEL	WZ-H3T-K		
Detection Principle	Micro fuel cell		
Detectable Gas	HCHO	temperature	humidity
Detection Range	0-1ppm	$-40^\sim 125℃$	$0-100\%$
Overload	5ppm	/	/
Input Voltage	3.3-5V		
Response Time (T90)	<120S		
Resolution	0.01ppm	0.015℃	0.01%
Accuracy	±30ppb or ±10%, whichever is greater（25±3℃）（50±5%RH）	±0.3℃	±3%
Operating temperature range	-40℃～70℃		
Operating Humidity Range	10％－90％RH（non-condense）		
Lifetime	3 years in air		
Warranty Period	12 months		
Weight	4g		

Cross Sensitivity

Interference Gas	Concentration of Interference Gas(ppm)	Concentration of HCHO(ppm)
Alcohol	2	<0.04
C6H6	10	0
CH3COOH	10	0
NH3	10	0
CO	1000	6
H2	1000	6

Communication Protocol

➢ **General Settings**

Module makes use of serial communication.

Communication configuration parameters are:

Baud rate	9600
Data bits	8 bits
Stop bit	1 bit
Parity bit	None

➢ **Communication Command**

There are two communication types: active upload type and Q&A type. The default type is active upload and it sends gas concentration once every second. Commands are as follow:

0	1	2	3	4	5	6	7	8	9	10	11	12	13
start	R	R	R	data									checksum
0XFF	0X17	0X04	0X00	HCHO ppb	HCHO ppb	Range ppb	Range ppb	t +:0/-:1	t ℃	t ℃	RH% %	RH% %	XX

R means reserved

HCHO concentration = HCHO (high byte) * 256 + HCHO (low byte)

1ppm=1000ppb

Temperature = t (high byte) + t (low byte / 100)

Humidity = RH% (high byte) + RH% (low byte / 100)

Switch to Q&A mode：

0	1	2	3	4	5	6	7	8
Start	Reserved	Switch command	Q&A	Reserved	Reserved	Reserved	Reserved	Checksum
0xFF	0x01	0x78	0x41	0x00	0x00	0x00	0x00	0x46

Switch to active upload mode：

0	1	2	3	4	5	6	7	8
Start	Reserved	Switch command	Active upload	Reserved	Reserved	Reserved	Reserved	Checksum

0xFF	0x01	0x78	0x40	0x00	0x00	0x00	0x00	0x47

To read gas concentration：

0	1	2	3	4	5	6	7	8
Start	Reserved	Command	Reserved	Reserved	Reserved	Reserved	Reserved	Checksum
0xFF	0x01	0x86	0x00	0x00	0x00	0x00	0x00	0x79

To return:

0	1	2	3	4	5	6	7	8
Start	Command	Concentration (High byte)（ug/m3）	Concentration (low byte)（ug/m3）	Reserved	Reserved	Concentration (High byte)（ppb）	Concentration (low byte)（ppb）	Checksum
0xFF	0x86	B3	B2	0x00	0x00	B1	B0	0x30

Gas concentration = concentration (high byte) * 256 + concentration (low byte)

To read temperature and humidity：

0	1	2	3	4	5	6	7	8
Start	Reserved	Command	Reserved	Reserved	Reserved	Reserved	Reserved	Checksum
0XFF	0X01	0X3F	0X00	0X00	0X00	0X00	0X00	XX

To return:

0	1	2	3	4	5	6	7	8
Start	Command	data	data	data	data	data	Reserved	Checksum
0XFF	0X3F	+:0/-:1	t（℃）	t（℃）	RH%	RH%	0x00	XX

Temperature = t (high byte) + t (low byte / 100)

Humidity = RH% (high byte) + RH% (low byte / 100)

Checksum calibration

/***

*Function name：unsigned char FucCheckSum(uchar *i,ucharln)

*Function description：checksum calibration[Take Not(Byte1+Byte2+…Byte7) +1]

*Note：Take Not(Byte1+Byte2+…ByteX (X>2)

***/

unsigned char FucCheckSum(unsigned char *i, unsigned char ln)

{

    unsigned char j, tempq=0;

    i+=1;

```
    for(j=0; j<(ln-2); j++)

    {

        tempq+=*i;

        i++;

    }

    tempq=(~tempq)+1;

    return(tempq);

}
```

Notes

➢ Avoid changing or moving sensor on the module.

➢ Avoid moving or changing electronic elements on PCB.

➢ Avoid exposure to organic vapour, organic solvent、high gas concentration.

➢ Protect from excessive vibration and shock.

    No recommended for industrial safety/personal monitoring, refer to 2-FP5.

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