

WZ-HN-24 Selective & High Temperature Resistant Formaldehyde Module



ProSense Technologies Co., Ltd.

Brief Introduction

WZ-HN-24 selective formaldehyde module, the upgrade version of WZ-H3-N, integrated the solid electrolyte with advanced production technique to realize the greatest improvement in performance/cost ratio. As WZ-H3-N, this new version can convert the electric signal into HCHO concentration directly, but with higher accuracy and stability.

Typical Applications

HCHO detection in vehicle

Air conditioners

Smart home

Portable devices

Wearable devices

Air purifier

... ..

Key Features

Selective detection

High temperature resistance

High precision

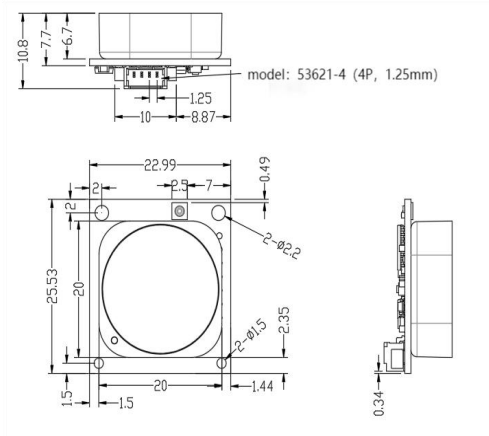
Fast response

Long service life

Low power consumption

High stability

Diagram

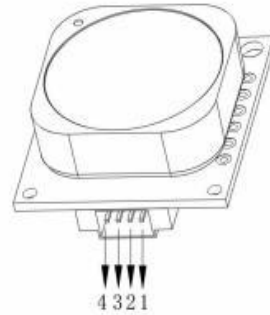


note: 1 All dimension is in mm

2 The tolerance is $\pm 0.15\text{mm}$

Definition of Pins

PIN	DEFINITION
Pin1	Vin(5V)
Pin2	GND
Pin3	RXD (0~3.3V data input)
Pin4	TXD(0~3.3V data output)



Technical Specification

MODEL	WZ-HN-24
Detection Principle	Micro fuel cell
Detectable Gas	HCHO
Detection Range	0-1ppm
Overload	2ppm
Input Voltage	4.5-7V
Response Time (T90)	<90S
Resolution	0.01ppm
Accuracy	$\pm 25\text{ppb}$ or $\pm 10\%$, whichever is greater ($25 \pm 3^\circ\text{C}$) ($50 \pm 5\%\text{RH}$)
Operating temperature range	$-40^\circ\text{C} \sim 70^\circ\text{C}$

Operating Humidity Range	10%—90%RH (non-condense)
Lifetime	8 years in air
Warranty Period	24 months
Weight	4g

Cross Sensitivity

Interference Gas	Concentration of Interference Gas(ppm)	Concentration of HCHO(ppm)
C ₂ H ₅ OH	2	<0.01
C ₆ H ₆	10	0
CH ₃ COOH	10	0
NH ₃	10	0
CO	1000	6
H ₂	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
Start	Gas	Unit ppb	No decimal byte	Concentrati on	Concentration (low byte)	Full range	Full range	Check sum

				(High byte)		(high byte)	(low byte)	
0xFF	CH2O=0x17	Ppb=0x04	0x00	0x00	0x25	0xXX	0xXX	0x25

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

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	0x00	0x2A	0x00	0x00	0x00	0x20	0x30

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

Checksum calibration

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

*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.