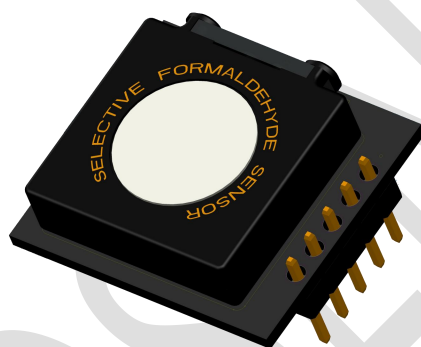


## WZ-H3N-mini Selective Formaldehyde Module



**ProSense Technologies Co., Ltd.**

## Brief Introduction

WZ-H3N-mini compact & selective formaldehyde module combines selective HCHO sensor with advanced electronic control technology, converting HCHO concentration into PPM directly. WZ-H3N-mini selective HCHO module has very low response to interference gases, such as C<sub>2</sub>H<sub>5</sub>OH and can generate accurate detection result. WZ-H3N-mini selective HCHO module is pre-calibrated in the factory and can be integrated into your system directly.

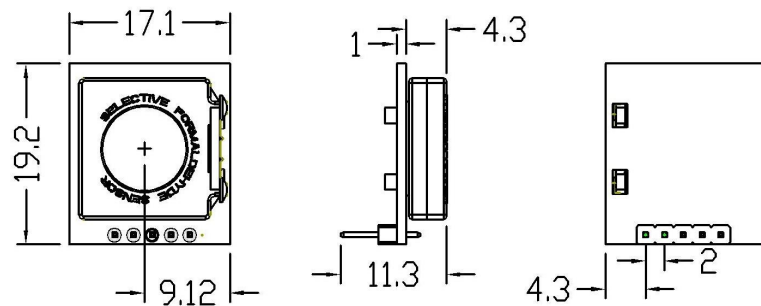
## Typical Applications

Smart home  
 Portable devices  
 Wearable devices  
 Air conditioners  
 Air cleaners  
 ... ..

## Key Features

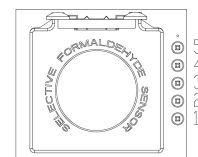
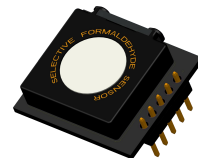
Selective detection  
 High precision  
 Fast response  
 Long service life  
 Small size  
 High stability

## Diagram



## Definition of Pins

| PIN  | DEFINITION    |
|------|---------------|
| Pin1 | Vin(3.3 - 5V) |
| Pin2 | TXD           |
| Pin3 | RXD           |
| Pin4 | GND           |
| Pin5 | RESERVED      |



## Technical Specification

| MODEL                       | WZ-H3N-mini  |
|-----------------------------|--|
| Detection Principle         | Micro fuel cell  |
| Detectable Gas              | HCHO   |
| Detection Range             | 0-1ppm   |
| Overload                    | 5ppm   |
| Input Voltage               | 3.3-5V   |
| Response Time (T90)         | <120S  |
| Resolution                  | 0.01ppm  |
| Accuracy                    | ±30ppb or ±10%, whichever is greater<br>(25 ± 3°C) (50 ± 5%RH) |
| Operating temperature range | -40°C ~ 70°C   |
| Operating Humidity Range    | 10% - 90%RH (non-condense)                                     |
| Lifetime                    | 6 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            |
|-------|-----------|---------------|-----------------|------------------------------|-----------------------------|---------------------------------|--------------------------------|--------------|
| Start | Gas       | Unit<br>ug/m3 | No decimal byte | Concentration<br>(High byte) | Concentration<br>(low byte) | Full<br>range<br>(high<br>byte) | Full<br>range<br>(low<br>byte) | Check<br>sum |
| 0xFF  | CH2O=0x17 | 0x04          | 0x00            | 0x00                         | 0x25                        | 0x07                            | 0xD0                           | 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<br>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<br>command | Active<br>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<br>(High byte)<br>(ug/m3) | Concentration<br>(low byte)<br>(ug/m3) | Reserved | Reserved | Concentration<br>(High byte)<br>(ppb) | Concentration<br>(low byte)<br>(ppb) | Checksum |
| 0xFF  | 0x86    | 0x00                                    | 0x2A                                   | 0x00     | 0x00     | 0x00                                  | 0x20                                 | 0x30     |

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

## Checksum calibration

/\*\*\*\*\*\*

\*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.



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