

Winsen ZP211 Refrigerant Gas Detection Module User Manual

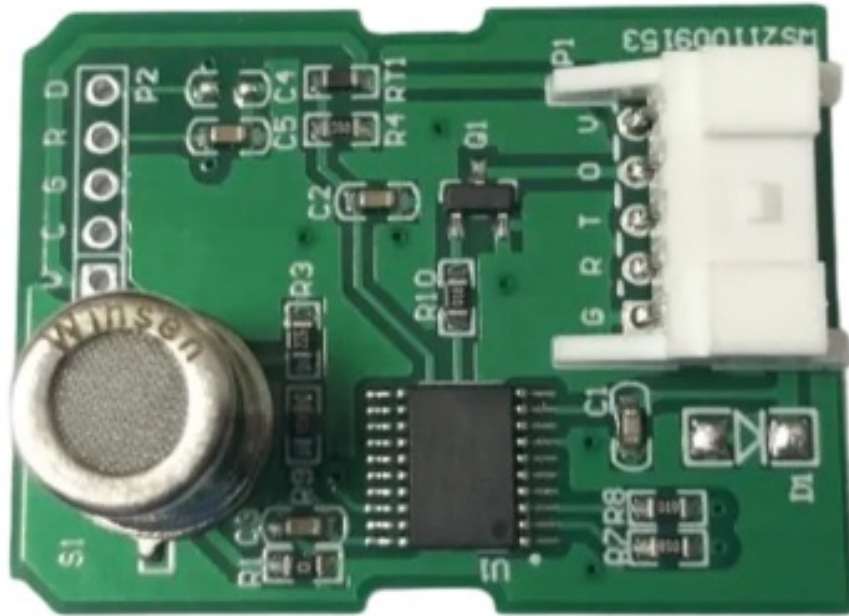
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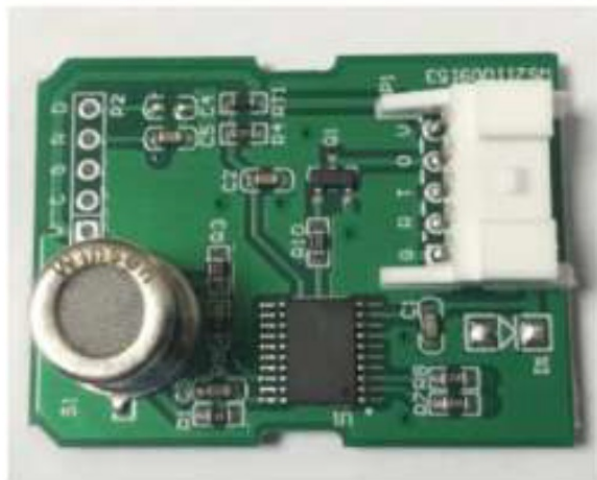


Winsen ZP211 Refrigerant Gas Detection Module



Product Description

ZP211 refrigerant gas detection module adopts advanced multi-layer thick film manufacturing process semiconductor gas sensor element. The gas sensor element contains a filter adsorption layer to reduce the interference of alcohol and other gases, and has extremely high sensitivity to refrigerant gas R290. The module has been aged , calibration, calibration, with good consistency and high sensitivity.



Features

High sensitivity, fast response, strong anti-interference ability, long life, stable operation, factory calibrated, sensor fault self-diagnosis

Application

Used for air conditioning, refrigeration system refrigerant leak detection.

Parameters

| | |
|----------------------------|--|
| Model | ZP211 |
| Target Gas | Refrigerant gas R290 |
| Physical interface | S05B-PASK-2 |
| Output Data | PWM |
| Working Voltage | 5.0±0.2V DC (No voltage reverse connect protection) |
| Working Current | ≤80mA |
| Warm Up Time | ≤3 min |
| Recovery time | ≤120s |
| Set alarm concentration | 2000ppm |
| Initial alarm accuracy | 1340 2660ppm |
| Operating Temperature | -20 55°C |
| Operating Humidity | ≤95 RH |
| Storage Temperature | -20 60°C |
| Storage Humidity | ≤60 RH |
| Size | 25×34×14.1mm L×W×H |
| Weight | 5g |

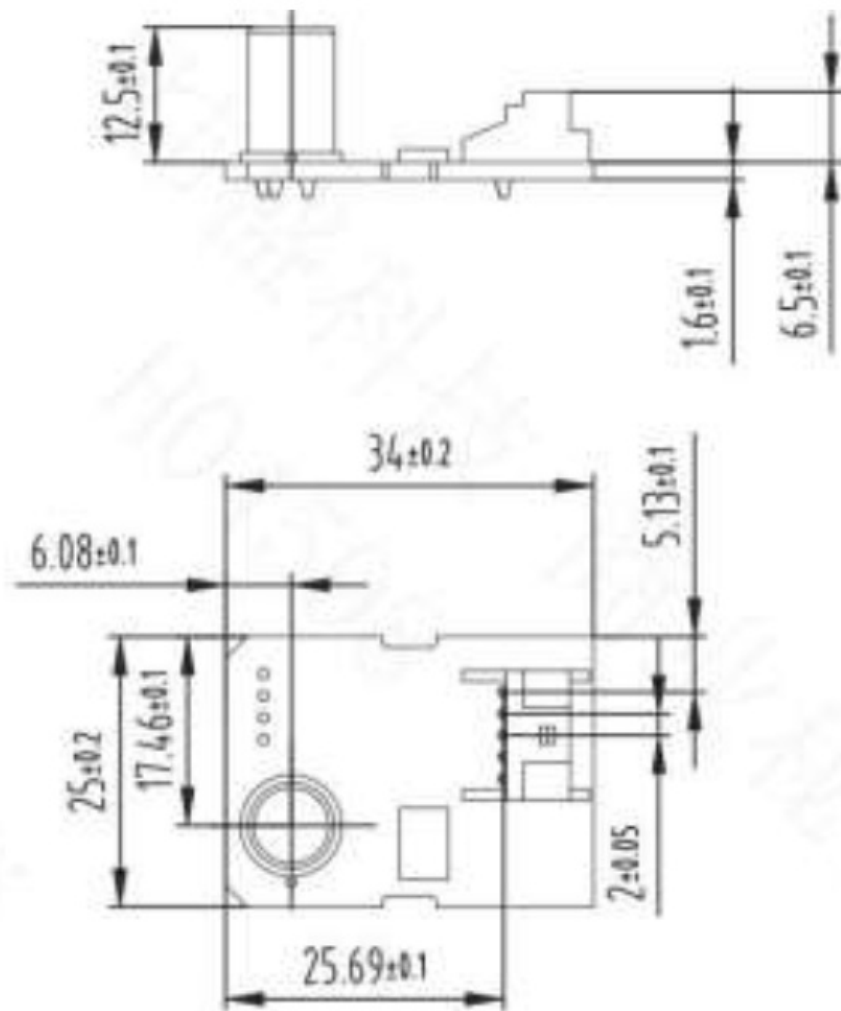


Figure 1:Structure(tolerance ± 0.2 mm)

Terminal definition

| Pin | Name | Function |
|-----|--------|---|
| G | GND | Input power – |
| R | / | / |
| T | / | / |
| O | Output | PWM signal output (need to connect external pull-up resistor) |
| V | 5V | Input power + |

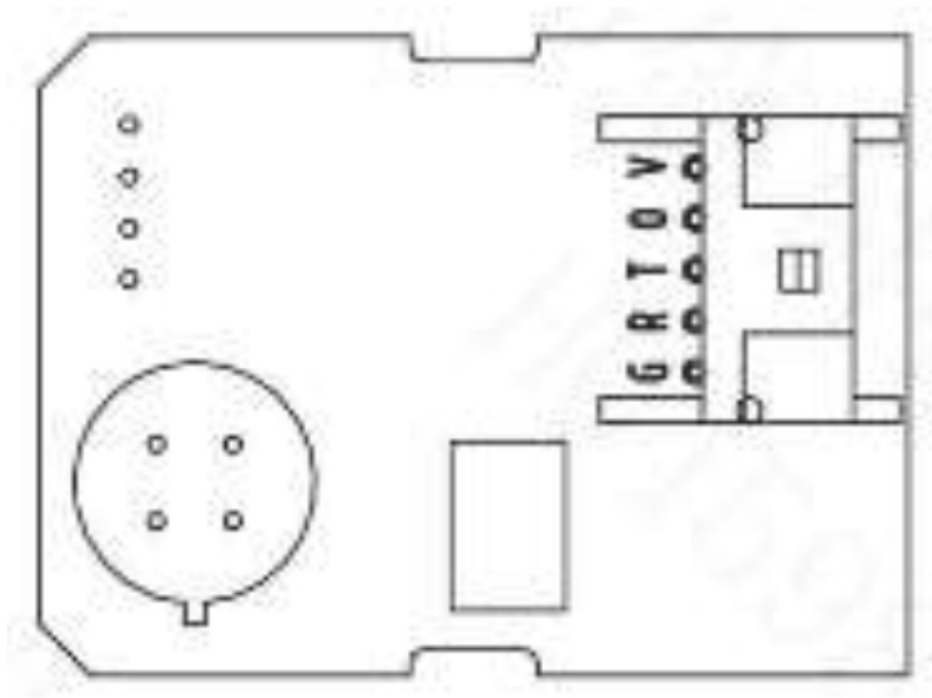


Figure 2: Module Pin Diagram

Definition of output signal

| Status | PWM output | |
|------------|------------|----------|
| Preheating | H 75ms | L: 300ms |
| Work | H 75ms | L: 300ms |
| Alarm | H 225ms | L: 150ms |
| Fault | H 300ms | L: 75ms |

Note:

1. After the module enters the alarm state, it will keep the alarm state and will not switch to other states. It needs to be powered on again to exit the alarm state.
2. If the sensor is exposed to high concentrations (above 10000ppm) of R290 gas, the sensor may be damaged and its performance may be affected.
3. The module fault signal takes priority over the alarm signal.

Sensor basic testing circuit

The module uses an MP511D sensor, and Figure 3 shows the basic testing circuit of the MP511D sensor. The sensor requires two voltages to be applied: heating voltage (VH) and testing voltage (VC).

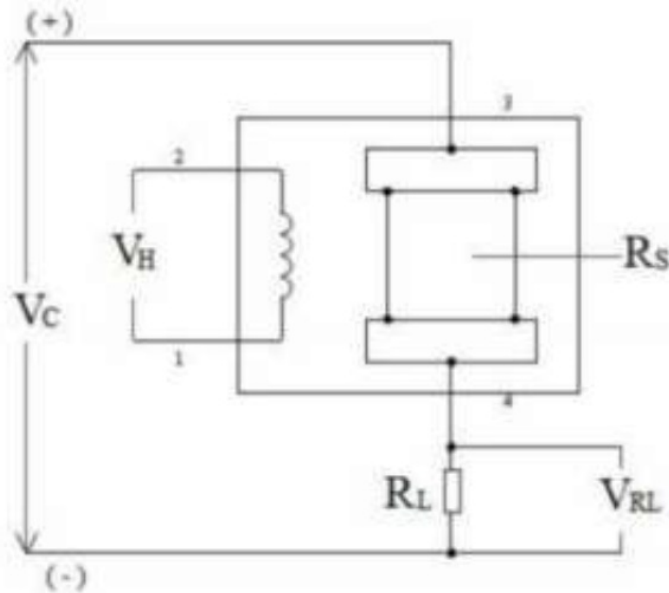


Figure 3 Basic Test Circuit of MP511D Sensor

Among them, V_H is used to provide a specific operating temperature for the sensor, and the voltage is applied to both ends of the heating electrode using a DC power supply. V_C is used to measure the circuit's loop voltage. V_{RL} is the voltage on the load resistor (R_L) connected in series with the sensor, which is the output voltage V_{OUT} . The module determines the concentration of refrigerant R290 in the current environment by detecting the voltage of V_{OUT} . On the premise of meeting the electrical characteristics of the sensor, V_H and V_C can share a common power supply circuit.

Cautions

- Please do not put the module in organic solvent (include silica gel and other cementing compounds), painting, medicament, oils and fuels, high concentration gas etc.
- Please do not impact or vibrate the module seriously.
- Please warm up for 5 min before first use.
- Please do not use the module related with personal safety.
- Please do not install the module in the severe convection environment.
- Please do not put in the module in high concentration organic gas for long time.
- Please supply the module with requested voltage as manual strictly, if voltage is higher than 5.5V, the module will be destroyed irreversibly.

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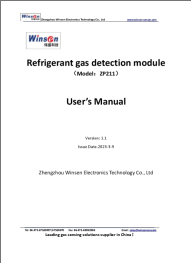
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Documents / Resources

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|  <p>The thumbnail shows the cover of the user manual. It features the Winsen logo at the top, followed by the title "Refrigerant gas detection module (Module: ZP211)", "User's Manual", "Version: 1.1", "Issue Date: 2023.11.9", and "Zhengzhou Winsen Electronics Technology Co., Ltd." at the bottom.</p> | <p>Winsen ZP211 Refrigerant Gas Detection Module [pdf] User Manual ZP211 Refrigerant Gas Detection Module, ZP211, Refrigerant Gas Detection Module, Gas Detection Module, Detection Module, Module</p> |
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References

- [Winsen Gas Sensor CO2 Sensor Air Quality Sensor Dust Sensor CO Sensor-Winsen Electronics](#)
- [Winsen Gas Sensor CO2 Sensor Air Quality Sensor Dust Sensor CO Sensor-Winsen Electronics](#)
- [User Manual](#)