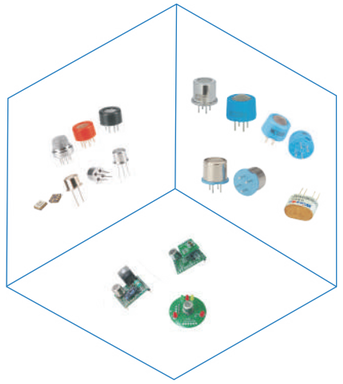
Safety Gas Detection

Winsen's domestic gas sensors are mainly used in civil fields to detect and analysize safety gases like flammable gas and carbon monoxide gas, and also air quality gases, alcohol gas and human exhaled gas, etc. lt has gas sensors and modules such as infrared carbon dioxide gas sensor, civil electrochemical carbon monoxide gas sensor,flat surfaced semiconductor gas sensor, catalytic gas sensor, semiconductor gas sensor, thermal conductive gas sensorand solid electrolyte gas sensor.



1.Flammable gas

MP series flat-surfaced semiconductor gas sensor, MC100 series catalytic gas sensor. MQ series semiconductor gas sensor and other gas sensors and modules are suitablefor the detection of flammable gases such as natural gas, liquefied gas and artificial gas. MP series products are stable and reliable, with good anti-seismic performance, low power consumption, small size and good consistency. MC100 series products arestable and reliable, with good anti-seismic performance, anticarbon, anti-sulfide, anti-silicide poisoning ability and long lifespan. They are widely used in civil gas leakage detection.

ZP14

ZC05

ZP13

Product	Model	Natural Gas	Liquefied Gas	Artificial Gas
Catalytic sensor	MC106	√	√	√
	MC107	√		
	MC226A	√	√	√
	MC227D	√		
Flat-surfaced semiconductor sensor	MP-4	√		
	MP-4C	√		
	MP-5		√	
Semiconductor sensor	MQ-2			√
	MQ-4	√		
	MQ-5	√	√	
	MQ-7B			√
	MQ-9B	√		√
Module	ZP04	√	√	
	ZP14	√		
	ZC05	√	√	√
	ZP13	Smoke		

Winsen | Safety Protection Gas Sensor

2.Carbon Monoxide

ME2-CO series electrochemical carbon monoxide gas sensor, MQ-7B semiconductor gas sensor and other gas sensors and modules, they are suitable for carbon monoxide gas detection in civil fields, ME2-CO and ME2-CO-Φ14 products, with low power consumption and long lifespan. lt is stable and reliable, and is widely used in civil applications, garage and other domestic fields for carbon monoxide detection.

ME2-CO-Φ14*14

ME2-CO-Φ14*5

ME2-CO

MEu-2CO

ME2-CO-Φ14*50-C

ZE21

ZE07

ZE15

Product	Model	Detection Range
Electrochemical gas sensor	ME2-CO	0-1000ppm
	Meu-2CO	
	ME2-CO-Φ14*14	
	ME2-CO-14*50-C	
	ME2-CO-14*5	
Module	ZE07	0-500ppm
	ZE15	
	ZE21	0-1000ppm

Household Gas Stove

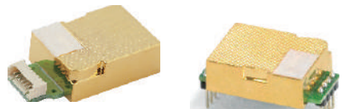
Gas Water Heater

Garage Environmental Monitoring

Health Field Gas Detection

1.Carbon Dioxide

MH-Z series infrared carbon dioxide gas sensors are suitable for carbon dioxide gas detection in civil fields. The series have multiple features of good selectivity, long life, digital output, and easy to use. Measurement range 0-5%VOL optional.



MH-Z19C

MH-Z19E

MH-Z14A/Z14B

MG811

MG812

MH-Z16

Product type	Model No.	Detection Range
NDIR carbon dioxide gas sensor	MH-Z14A	400-10000ppm
	MH-Z19C	
	MH-Z19E	
	MH-Z16	0-15%VOL
	MH-Z14B	0-10000ppm
	MH-Z1311A	
	MH-Z1911A	400-10000ppm
	MH-V1512A	400-10000ppm
Solid electrolyte gas sensor	MG812	350-10000ppm

Smart Home

Educational Instrument

Agricultural Greenhouse

Livestock Farm

Winsen | Environmental Gas Sensor

2.Alcohol Gas

ME2-C2H50H electrochemical sensor, GM-302B MEMS sensor, MP-3 flat semiconductor sensor, MQ3B and MQ-303B semiconductor sensors, and other gas sensors/modules suitable for alcohol gas detection. They have stable performance and high sensitivity meeting different levels of demand.

ZE29A

ZM03

ZM301

GM-302B

MQ-303B

MP-3B

ME2-C2H5OH-13*13

MQ-3B

ME2-C2H5OH

Product Type	Model	Principle Type	Application Type		
			High-end alcohol	Commercial alcohol detector	Economical
Electrochemical gas sensor	ME2-C2H5OH-Φ16	Pump suction type	√	√	
	ME2-C2H5OH-13*13	Pump suction type	√	√	
MEMS gas sensor	GM-302B	Free diffusion Type		√	
Flat semiconductor gas	MP-3B	Free diffusion Type		√	
Semiconductor gas sensor	MQ-3B	Free diffusion Type		√	
	MQ303B	Free diffusion Type			√
Sensor module	ZE29A	Pump suction type	√		
	ZM03	Pump suction type	√	√	
	ZE300	Pump suction type	√	√	
	ZE301	Free diffusion Type	√	√	

Drunk Driving Test

Breathalyzer

Shared Car

3.VOC

MP series semiconductor gas sensors and their modules are suitable for the detection of formaldehyde benzene, ammonia, sulfides, nitrogen oxides and other pollutants in the air. In particular, the advantage of flat semiconductor gas sensor MP series is low power consumption, small size, long life, good stability etc. lt can detect the level of pollutant gas in the ppm level. lt is suitable for long-term power supply in the greenhouse, and is widely used in air quality testing , automatic ventilation system, air purifier and air flow control equipment.

MEMS series

MP series

ZP modules

ZE40

Product Type	Model	Detection Range	Output Signal
Flat semiconductor gas sensor	MP503	10-1000ppm(alcohol)	Analog Voltage
	MP905	0.5-1000ppm(alcohol)	
	WSP2110	1-56ppm	
	GM-502B	1-500ppm	
Sensor module	ZM01	5ppm(alcohol)	I2C
	ZP01	4 Grades	TTL Voltage
	ZP07	4/10/100 Grades	TTL Voltage
	ZP16	0-10mg/m	UART
	ZE40	0-5ppm	UART

4.Formaldehyde

Civil electrochemical formaldehyde sensor has the advantages of low power consumption, high precision, highsensitivity, wide linear range, strong anti-interference ability, excellent repeatability and stability, etc. lt is mainly used for detection of formaldehyde in civil and environmental protection fields.

ME2-CH20-15*16

ZE08K

ZE08-CH20/ZE08B-CH20

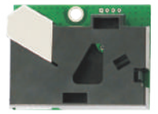
Product Type	Model	Detection Range	Output Signal
Electrochemical gas sensor	ME2-CH2O-16*15	0-5ppm	Analog current
Sensor module	ZE08K-CH2O	0-5ppm	DAC/UART
	ZE08-CH2O	0-5ppm	DAC/UART
	ZE08B-CH2O	0-1.6ppm	UART
	ZES10-CH2O	0-5ppm	UART output（3V TTL ）

Winsen | Environmental Gas Sensor

5.PM2.5

Infrared principle

The dust sensor is a sensor that detects dust particles in the air by a method of performing particle counting, which is based on principle of infrared optics of infrared light scattering on dust particles. This product adopts PWM pulse width modulation and particle counting principle can sensitively detect particles with 1 pm diameter. Built-in heater for automatic air intake. The advantage is small size, light weight, easy installation and simple maintenance. It is suitable for air fresheners, air purifiers, air conditioners, ventilation equipment and environmental monitoring equipment.



ZPH02

ZPH03

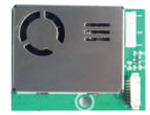
ZPH04

Laser principle

The laser dust sensor is a versatile and compact module. It has good consistency and stability with UART output and PWM output for easy use. Small size for easy integration. Mainly used in air purifiers, fresh air systems, portable instriuments, air quality monitoring equipment, air conditioners, smart home equipment and other places.

ZH03B

ZH06



ZH08

ZH07

Product Type	Model	Detection Range	Output Signal
Infrared dust sensor	ZPH02	0-300ug/m³	UART/PWM
	ZPH02-VOC+PM2.5		
	ZPH03	0-999ug/m³	
	ZPH04		
Laser dust sensor	ZH03B	0-1000ug/m³	
	ZH06		
	ZH07		
	ZH08		
	ZH10	0-1000μg/m³	UART/PWM

Air Purifier

IAQ Product

HVAC System

6. Ozone

Civil electrochemical ozone sensor has the advantages of low power consumption, high precision, high sensitivity, wide linear range, strong anti-interference ability, excellent repeatability and stability, and is mainly used for ozonedete ction in civil and environmental protection fields.

ME2-03-Φ20

ME2-03-15*16

ZE14-03

ZE25-03

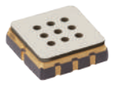
ZE27-03

Product Type	Model	Detection Range	Output Signal
Electrochemical gas sensor	ME2-O3-Φ20	0~20ppm	Analog Current
	ME2-O3-15*16	0~10/0~100ppm	
Sensor module	ZE14-O3	0~100ppm	UART
	ZE25-O3	0~10ppm	DAC/UART
	ZE27-O3	0~10ppm	UART

7. Mouth Smell

The gas sensing material used in mouth odor sensor is a semiconductor material having low electrical conduictivity in clean air. When target gas is present in the environment in which the sensor is located, conductivity of the sensor increases as target gas concentration increases. The change in conductivity can be converted to signal output corresponding to gas concentration using a simple circuit.

MQ316



GM-512B

8.Refrigerant Sensors

Semiconductor and NDIR infrared refrigerant sensors are used for qualitative and quantitative detection of R32, R410a, R410a, R134a, R290, etc. in different application scenarios. The sensors are designed with function of self-diagnosis, meeting standard of UL60335-2-40:2022. With the sensors, refrigerant gas leakage alarm and automatic switch-off can be realized. More different functions can be equipped according to the needs of manufacturers of air conditioner, heat pump, and refrigerant detection instrument.

MP510C

ZP201

MH-441D/MH-441D-454B

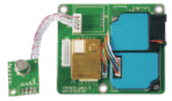
MH-Z1542B-R32

Product Type	Model No.	Measurement Range	Output
Semiconductor sensor	MP510C	100-10000ppm	Analog Voltage
Semiconductor module	ZP201	100-10000ppm	PWM
NDIR sensor	MH-441D/ MH-441D-454B	0-5.00%Vol	UART
NDIR sensor	MH-Z1542B-R32	0-50%LFL	UART

9.Multi-in-One

A multi-in-one module integrating laser dust sensor, infrared carbon dioxide sensor, electrochemical formaldehyde sensor, electrochemical ozone sensor, electrochemical carbon monoxide sensor, VOC sensor, nitrogen dioxide sensor, temperature and humidity sensor. It can accurately measure the content of various gases to be measured in the air.

ZPHS01C-Formaldehyde Version
(CO2, PM2.5/10, CH2O, T&H)



ZPHS01-TVOC Version
(CO2, PM2.5/10, TVOC, T&H)

ZPHS01B 9-in-1 Air Quality Detection Module
(CO2, PM2.5/10, TVOC, CO, O3, CH2O, NO2, T&H)

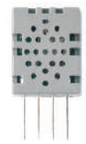
10.Temperature and Humidity Sensor/Module

The temperature and humidity sensor is made of polymer moisture-sensitive material. With the increase of humidity, the polymer moisture-sensitive material swells, the internal free volume increases, and the carriers increase. At the same time, the activation energy of polymer polyelectrolyte counter ions decreases and migration As the rate increases, the impedance of the material decreases.

The digital temperature and humidity module adopts polymer resistive humidity sensor and NTC temperature measuring element, and is equipped with a high-performance single-chip microcomputer. The product has excellent performance, has the characteristics of ultra-fast response and strong anti-interference ability.

The WHT20 temperature and humidity sensor is embedded in a double-row flat leadless SMD package suitable for reflow soldering. The temperature and humidity signals can be read from different pins. The bottom surface is 3.0X3.0mm and the height is 1.0mm. The sensor outputs a calibrated digital signal in standard I2C format. The WHT20 is equipped with an ASIC chip, a MEMS capacitive humidity sensing element and a temperature sensing element. The WHT20 temperature and humidity sensors have been factory calibrated and tested with excellent reliability and long-term stability.

MS-Z3



ZS03/ZS05

WHT20

Industrial Safety Gas Sensor

Industrial gas sensors of Winsen Electronics are mainly used in detection of flammable gases, toxic gases, oxygen, carbon dioxide and other gases in industrial field, which include infrared gas sensors, electrochemical gas sensors，catalytic gas sensors, thermal conductive gas sensors, and industrial semiconductor gas sensors.

Industrial Flammable Gas Detection

1.Infrared Combustible Gas Sensor

MH series infrared flammable gas sensors are suitable for hydrocarbon detection, which include MH-440D and MH-741A.

MH-440D

MH-441D

MH-741A

MH-742B

Model No.	Measurement Range	Portable Detector	Online Detector
MH-440D	0-100LEL% Optional	√	√
MH-441D	0-100LEL% Optional	√	√
MH-741A	0-100VOL% Optional		√
MH-742B	0-100VOL% Optional		√
MH-1542B-CH4	0-100LEL% Optional	√	√

2. Catalytic Sensor

MC series industrial catalytic sensors are suitable for the detection of flammable, explosive gases or organic vaporsin lower explosive concentration range of various industrlal flelds such as petroleum and chemical industry. The product is stable and reliable, with good seismic performance, strong resistance to carbon deposition, anti-sulfide and anti-silicide poisoning, and long lifespan.

The gas types detected by MC series industrial catalytic components include:

Class A gas - alkane gas

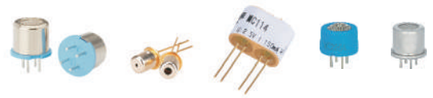
Class B gas - enyne gas

Class C gas - organic vapors such as alcohols, ethers, aldehydes, ketones, etc.

Class D gases - organic vapors such as benzene, toluene, xylene, gasoline, diesel, etc.

Users need to select the corresponding carrier catalytic element according to the test object.

Winsen | Industrial Safety Gas Sensor



Industrial Catalytic Sensor

Catalytic Sensor Module

Model No.	Measurement Range	Portable Detector	Online Detector
MC105	0-100LEL%	√	√
MC106B	0-100LEL%	√	√
MC109	0-100LEL%	√	√
MC112	0-100LEL%	√	
MC113	0-100LEL%	√	√
MC114	0-100LEL%	√	√
MC119	0-100LEL%	√	√

Petroleum Gas Detection

Gasoline Detection

Mine Gas Monitor

Industrial Toxic Gas Detection

ME series industrial electrochemical gas sensors and MQ series industrial semiconductor gas sensors are suitable for toxic gas detection.

ME series industrial electrochemical gas sensor include ME3, ME4 and other types. ME3 is suitable for portable instruments ME4 is suitable for portable instruments and online detectors. MQ series industrial semiconductor gas sensors are used for the detection of toxic gases such as hydrogen sulfide, ammonia, organic vapors and halogens.

MQ Series Toxic Gas Sensor

MEU Series Industrial Gas Sensor

ME3 Series Toxic Gas Sensor

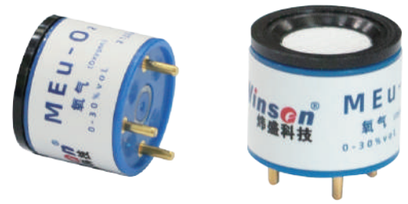
ME4 Series Toxic Gas Sensor

Detection Gas	Product Series			
	ME4	ME3	MQ	MEU
CO	√	√	√	√
H2	√	√	√	√
H2S	√	√	√	
NH3	√	√	√	
CL2	√	√		
HCL	√	√		
SO2	√	√		
PH3	√	√		
ETO		√	√	
NO2		√		
CH3OH		√	√	
C2H5OH		√	√	
HCHO		√	√	
C3H6O		√	√	
C6H6		√	√	
C7H8		√	√	

Winsen | Industrial Safety Gas Sensor

Industrial Oxygen Detection

ME2-O2-Φ20, MEu-2O2 and MEu-O2 are electrochemical principle sensors available to measure oxygen within range of 0-25%vol (max range of 30%VOL), widely used in mine, industrial process, warehousing and environmental protection etc.



ME2-O2-Φ20

Model No.	Measurement Range	Portable Detector	Online Detector
ME2-O2-Φ20	0-25%VOL	√	√
MEu-2O2	0-25%VOL	√	√
MEu-O2	0-25%VOL	√	√

Industrial Carbon Dioxide Gas Detection

MH series infrared carbon dioxide gas sensors are suitable for carbon dioxide gas detection in industrial field. It has MH-410 series and MH-7series.

MH-410D

MH-411D

MH-712B

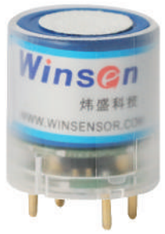
Model No.	Detecting Gas Range	Application	
		Portable Instrument	Online Detector
MH-410D	0-10%VOL optional	√	√
MH-411D	0-10%VOL optional	√	√
MH-711A	0-5%VOL optional		√
MH-712B	0-5%VOL optional		√

Smart Modules for Industrial Application

ZE03 is a high-performance, general-purpose electrochemical series modue that uses three electrode electrochemical gas sensor and high-pertormance microprocessor to measure corresponding gas by installing different gas sensors.

It assembles with built-in temperature sensor for temperature compensation, which makes it could detect gas concentration accurately. It has digital output and analog voltage output at the same time, which is easy to use and calibrate that greatly shorten the development period.

It combines electrochemical sensors and circuits to meet customers' needs for different gas detection applications.



ZE03

Detectable gases:

CO, O2, NH3, H2S, NO2, O3, SO2, CL2, HF

Detection Gas	Measurement Range	Resolution	V_0 Voltage Output Range	Response Time(T90)
NH3	(0-100)ppm	1ppm	(0.6-3) V	≤150S
H2S	(0-100)ppm	1ppm	(0.6-3) V	≤30S
CO	(0-1000)ppm	1ppm	(0.6-3) V	≤30S
O2	(0-25) %VOL	0.1%VOL	(1.5-0) V	≤15S
H2	(0-1000)ppm	1ppm	(0.6-3) V	≤120S
C2H4	(0-100)ppm	0.1ppm	(0.6-3) V	≤120S
HCHO	(0-50)ppm	0.1ppm	(0.6-3) V	≤120S
O3	(0-10) ppm	0.1ppm	(2-0) V	≤120S
SO2	(0-20) ppm	0.1ppm	(0.6-3) V	≤30S
NO2	(0-20) ppm	0.1ppm	(2-0) V	≤30S
HCL	(0-10)ppm	0.1ppm	(2-0) V	≤60S
HCN	(0-100)ppm	0.1ppm	(0.6-3)V	≤120S
CL2	(0-20) ppm	0.1ppm	(2-0) V	≤60S
HF	(0-10)ppm	0.1ppm	(2-0) V	≤60S
ETO/VOC	(0-100)ppm	0.1ppm	(0.6-3) V	≤120S
PH3	(0-1000)ppm	0.1ppm	(0.6-3) V	≤30S
DG01	(0-50) ppm	0.1ppm	(0.6-3) V	≤120S

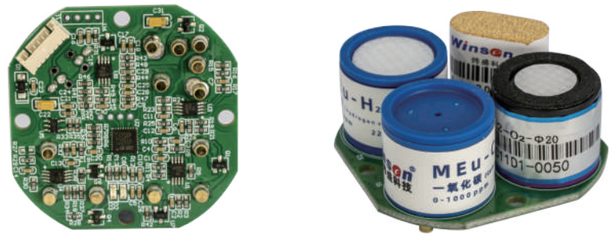
Winsen | Industrial Safety Gas Sensor

4-in-1 Industrial Gas Detection Module

The 4-in-1 detection module ZCE04B is mainly aimed at various places where ambient gas detection is required. The product contains four gas sensors (expandable for CO, H2S, O2 and CH4 gases) and a signal processing circuit board. The module has good selectivity and stability. The module can output the current concentration values of the four gases in real time through the digital serial port output. It can be used in handheld devices or fixed devices to detect the current concentration of ambient gas. This module is a general-purpose miniaturized product that closely combines mature sensor detection technology and sophisticated circuit design.

Detectable gases:

C6H6, C7H8, C8H8, C8H10, C2H4O, C2H3Cl, etc.



ZCE04B

Atmospheric Monitoring Application

ME4-CO/S02/NO2/O3-E4 sensor. The detection gas and O2 have corresponding reductive oxidation reactions on the working electrode and the counter electrode, and release corresponding charge to form a current. The current is proportional to gas concentration in accordance with Faraday's law, and detection gas concentration can be determined by measuring the current. The fourth auxiliary electrode of the sensor is used to compensate zero current, so that it has characteristics of strong signal level and low zero current.

It is mainly used in urban air and enterprise environment monitoring, factory area unorganized emission pollution gas monitoring, emergency monitoring environmental evaluation monitoring.

Detectable gases:

CO, SO2, NO2, O3

ME4-CO/SO2/NO2/O3-E4/PID

Winsen | Industrial Safety Gas Sensor

ZE12A electrochemical module is a general module, which uses electrochemical principle to detect CO, SO2,N02,03 and other gases in the air, with good selectivity and stability. Built-in temperature sensor for temperature compensation; lt's convenient to use with digital output and analog voltage output.
ZE12A is a general gas module designed and manufactured by combining mature electrochemica detection technology and superior circuit design.
It is mainly used in urban air and enterprise environment monitoring, factory area unorganized emission pollution gas monitoring, emergency monitoring environmenta evaluation monitoring, portable instrument, air quality monitoring equipment, smart home equipment, etc.

Detectable gases:

CO, SO2, NO2, O3

ZE12A

ZEHS04 is a diffusion type multi-in-one module, mounted with atmospheric monitoring module ZE12, to detect CO, SO2, NO2, and O3. It is also compatible to connect with dust sensor module, temperature and humidity sensor module externally. With TTL or RS485 output, it is convenient to use and debug, which greatly shortens the user's design and development cycle, and meets customers' needs for different gas detection occasions.

ZEHS04

Winsen | Industrial Safety Gas Sensor

Smart City

ZE03 electrochemical module with a variety of gas types and measurement ranges. These modules mainly detect toxic, harmful, combustible and other gases.

ZE03

MH-441D

ZI01

Model No.	Application	Output	Sensor Component
ZE03	Toxic and harmful gas monitoring	Analog voltage, UART	ME3 series sensor
ZE05/ ZE05B	Toxic gas monitoring	Analog voltage, UART, DAC	ME4 series sensor
ZC01/ 02/ 09	Industrial combustible gas module	Indicator lamp/Trembler	Combustible gas sensor
ZE11	VOC type gas monitoring	Analog voltage, UART, DAC	ME3 series sensor
ZE12A	Atmospheric environmental monitoring	Analog voltage, UART, DAC	ME4 series sensor
ZI01	VOC type gas monitoring	Analog voltage, UART	ME3 series sensor
ZEHS04	Air monitoring all-in-one module	UART, RS485	ZE12, dust, etc.

Smart Corridor

Smart City

Energy Generation & Storage

Energy series modules, using working principle of electrochemical, catalytic, semiconductor, etc., have features of good selectivity, good stability, multiple gas detection, and multiple models optional, etc. The modules are also widely used in lithium battery safety monitoring, new energy hydrogen detection, flammable and explosive charging pile & energy stations, wind power generation, natural gas vehicle safety monitoring and other places.

ZE21-CS

ZR02

CMV-2021D

ZPE02

ZE07-H2

ZE03-H2

Model No.	Output	Using Sensors	Application
ZE21-CS	Serial port	Electrochemical sensor	Battery leakage detection
ZR02	Serial port , DAC	Catalytic sensor	Combustible gas detection
CMV-2021D	Voltage	MEMS sensor	Hydrogen gas detection
ZPE02	Serial port	Flat semiconductor & Electrochemical sensors	Combustible gas detection
ZE07-H2	Serial port , DAC	Electrochemical sensor	H2, battery leakage detection
ZE03-H2	Serial Port , DAC	Electrochemical sensor	H2, battery leakage detection

New Energy Vehicle

Wind Power Generation

Energy Storage Cabinet

Winsen | New Energy & Automotive Electronics

Automotive Electronics

1.AQS Internal & External Air Quality

Urban traffic congestion and air pollution are serious problems. The opening of external circulation will cause the cabin to be filled with exhaust gas, resulting in air pollution in the vehicle. But if the internal circulation is open for a long time, air quality in the car will also decline, causing discomfort of driver and passengers. Therefore, it is necessary to shift the internal and external circulation according to different conditions and demand. The AQS module based on MEMS technology is able to detect real-time air quality at the inlet of air conditioner, work with air conditioner to shift air circulation in different environment, and greatly improve driving experience.

ZM102

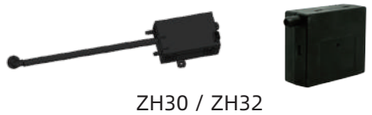
2.CO2 Sensor

When a car is closed for a long time, the driver and passengers will constantly exhale carbon dioxide CO2. When CO2 concentration increases to a certain level, human body will feel uncomfortable, such as lack of concentration and drowsy. At this time, the C02 gas sensor will trigger air conditioner to switch to external circulation, improving the air quality in the car and providing a comfortable experience.

MH-V1512A

3.Laser Dust Sensor

PM2.5 sensor is used in automotive air conditioners, air purifiers to measure the concentration of particles in the car, and the vehicle purifier is linked to improve the air quality in the car, so as to avoid excessive inhalation of dust and damage to the health of human in the vehicles. The sensor works on the principle of Mie scattering, using professional algorithms and detection processes. Single channel or dual channel is optional for different demand.



ZH30 / ZH32

4.Hydrogen Gas Leakage

The hydrogen concentration sensor is a key safety component for hydrogen fuel cell engine and hydrogen supply pipeline system to monitor H2 gas leakage. The principle of catalysis and the signal amplifier, and the CAN signal output is used for the corresponding hydrogen concentration. The signal output is linear and the alarm point can be set at free selection.

ZC61

5.Battery Thermal Runaway

With the development of electric vehicles, people put forward higher requirement on the safety performance, and also show worries faced with many accidents of battery spontaneous combustion. When battery thermal runaway occurs, there will be release of toxic gas such as CO CO2, VOC gas, and temperature change to be detected by the sensor module and trigger BMS (battery management system) to take appropriate measures and alarm to avoid accidents.

ZEQH-101

6.Life Presence Detection

There have been many incidents of children death of suffocation after being left in cars. To prevent such tragedy repeating, our company developed carbon dioxide sensor for vehicles. The sensor can detect signs of life in the car and alert car owner to prevent living creatures being trapped in the car for long time, so as to avoid these accidents.

ZHMT101

7.Composite Rain Sensor

The composite rain sensor detects the volume of water on the front windshield of the vehicle, automatically controls the wipers, keeps the windshield clean, enhances visibility, reduces potential safety hazards, and makes driving safer. At the same time, this product also integrates functions of light detection, temperature and humidity measurement.

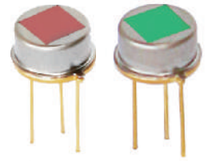
ZH101

Product Series	Model No.	Detection Target	Application
AQS Air Quality Module	ZM102	CO/HC, NOx, NH3	Automotive air conditioner
CO2 sensor	MH-V1512A MH-V1512B	CO2	Automotive air conditioner, drowsy driving
Laser dust sensor	ZH30/ZH32	Dust, particulate matter	Automotive air conditioner, air purifier
Gas leakage sensor	ZC61	H2/CH4	Hydrogen energy, natural gas vehicles
Battery thermal runaway monitoring	ZEQH-101	CO2, CO, VOC	Security of lithium battery, energy storage
Composite rain sensor	ZH101	Water volume	Automotive rain wiper
Life presence detection	ZHMT101	Life presence	Life presence in the vehicle

1.Pyro-electric Flame Sensor

Pyro-electric flame sensor uses lithium tantalate single crystal as the sensitive element material. The Curie temperature of lithium tantalate crystal material is above 600℃, the relative dielectric constant is small, and the specific detectivity is high.

In a wide range of room temperature, the pyroelectric coefficient of the material changes very little with temperature, and the temperature change rate of the output signal is only 1-2‰. The temperature stability of the sensor performance is very good, and the spectral response consistency is very good in the wavelength range of 1-20μm.



RD-913FB1\RD-913FB2\RD-913FB3\RD-913FB4\RD-913FB5

RPFA913CC\ RPFA913CD\ RPFA913CE\ RPFA913CF\ RPFA913CG

2.Infrared Photoconductive Flame Sensor

The lead selenide (PbSe) sensor is a lead salt infrared photoconductive sensor, and its working principle is based on the photoconductive effect of semiconductor materials, thereby converting infrared radiation energy into electrical signals. PbSe sensors have strong absorption and response in the near and mid-infrared (1.0-5.0μm) spectral bands, and are widely used in flame, high temperature and gas detection.

The lead sulfide(PbS) sensor is a lead salt infrared photoconductive sensor, and its working principle is based on the photoconductive effect of semiconductor materials, thereby converting infrared radiation energy into electrical signals. The main response wavelength of PbS sensor is short-wave infrared (1.0-3.0 μm). It is widely used in flame and high temperature detection.

REF&REG-X2212

RGF-L1212

C^{13} (Carbon Dioxide) PbSe Sensor

The C^{13} Carbon Dioxide PbSe Sensor is a lead-salt type infrared photoconductive sensor, and its working principle is based on the photoconductive effect of semiconductor materials, thereby converting infrared radiation energy into electrical signals. The PbSe sensor has strong absorption and response in the near and mid-infrared (1.0-5.0μm) spectral bands. Using the principle of NDIR gas sensor, it can be applied to the detection of C^{13} carbon dioxide of Helicobacter pylori breath detector.

RPTA-646

Human Body Induction Sensing

1.Analog Pyroelectric Motion Sensor

RD series pyroelectric infrared sensors and modules have high sensitivity, superior signal-to-noise ratio, high stability to temperature changes, strong anti-interference ability, and superior cost performance. They are applicable to various sensing devices in civil fields, such as safety devices, burglar alarms, induction doors, automatic lamps, smart toys, etc.

RD-624/623

RD-626WP

ZRD Series Module

2.Digital Pyroelectric Motion Sensor

The digital pyroelectric sensor integrates sensitive element of analog pyroelectric sensor and signal processing chip into sensor shielding cover. The sensitive element transfer infrared signal generated by external human body movement to high-precision digital chip for processing by “Differential input” . After signal processing, the sensor gives digital signal for easy using.

RDA223-F/RDB223

RDA224-F/RDB224

RDA226S-F/RDB226S

Product Type	Model No.	Window Size (mm)	Sensitive Area (mm)	Features
Analog	RD623	3.8×5	2×1, 2 elements	/
	RD624	3×4	2×1, 2 elements	/
	RD626WP	3×4	2×1, 2 elements	Anti-interference
	RPTA-646	4.9×4.9	1×1, 4 elements	Anti-interference
Product Type	Model No.	PIN Qty	Sensitive Area (mm)	Features
Digital	RDA223-F/ RDB223	3	2×1, 2 elements	/
	RDA224-F/ RDB224	4	2×1, 2 elements	Delay time adjustment
	RDA226-F/ RDB226S	6	2×1, 2 elements	Delay time, sensitivity, and CDS adjustment
	RPTD-646-3	3	1×1, 4 elements	/
	RPTD-646-4	4	1×1, 4 elements	Delay time adjustment
	RPTD-646-6	6	1×1, 4 elements	Delay time, sensitivity, and CDS adjustment

Winsen | IR Pyroelectric & Thermopile Sensor

4.Thermopile Sensor

Thermopile sensor is a new CMOS-compatible infrared sensor with high infrared response rate, high repeatability and high reliability. The sensor is packaged in a TO-46 metal case with an IR filter window. And high-precision thermistor chip is built in inside, which can compensate ambient temperature.

MRT-311/511
RTTA71

MRT-313

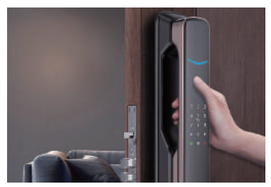
MRTD-3011

5.IC Chip and Fresnel Lens

Fresnel lens are mounted in front of the sensor. The len is made of transparent plastic, and is divided into several equal parts to form a lens with a special optical system. With corresponding amplifying circuit, it can amplify the signal by more than 70 decibels, so that people's movement in the range of 10 to 20 meters can be measured.

A high-performance signal processing integrated circuit, is equipped with a pyroelectric infrared sensor and a few external components to form a passive pyroelectric infrared switch. It can automatically and quickly open all kinds of incandescent lamps, fluorescent lamps, buzzers, automatic doors, electric fans, dryers and automatic hand basins, etc., especially suitable for aisles, corridors, and other sensitive area of enterprises, hotels, shopping malls, warehouses and family, or automatic lighting and alarm systems of safe areas.

Induction Light



Smart Lock

Thermometer

Security Monitor

Winsen | Flow Sensors

Flow Sensor

Micro flow sensor adopts thermodynamic principle to detect gas flow, and it has high accuracy and good repeatability. Built-in temperature sensor makes the product has the function of professional temperature compensation calibration. Meanwhile, it has linear analog voltage output and is very convenient to use.

Features of flow sensors:
Latest MEMS Sensor chip technology
High accuracy, quick response,
Good Repeatability
Detection micro flow accurately
Completely calibrated and temperature compensated

Main applications of flow sensors:
Industrial process control
Air and environment protection
Portable detector
Medical oxygen supply

FR20

FR03H

FR06

FR03

Winsen | Pressure Sensor/ Transmitter

Ceramic Type

1.Ceramic Pressure Sensor

Winsen ceramic pressure sensor adopts ceramic base, made into ceramic piezoresistance pressure sensor with thick-film technology. It's a kind of material with high elasticity, corrosion resistance, wear resistance, resistance to impact and vibration. Ceramic's good thermal stability and thick film high temperature sintering process make the ceramic pressure sensor's operating temperature range up to -40 ~ 125 ℃. The ceramic's high elasticity and creep resistance make the ceramic pressure sensor have good long-term stability. Besides, the corrosion resistance character makes the sensor have unique advantages in the application such as the refrigeration, chemical and environmental protection and other fields.

WPAH01

WPAH06

2.Ceramic Pressure Sensor Module

Winsen ceramic pressure sensor module is a voltage output type of pressure transmission module, it's like a ceramic pressure transmitter without shell. This product is made of refined ceramic seat ceramic piezoresistive pressure sensor, using precision conditioning chip on the sensor offset, sensitivity, temperature drift and other compensation. With high integration, small size, high precision, good consistency, anti-interference ability, response speed block, wide temperature range and other characteristics.

WPBH01

WPBH06

3.Ceramic Capacitive Pressure Sensor

Winsen ceramic capacitive pressure sensor is a kind of ceramic capacitive pressure sensor refined by thick film process using refined ceramic components. Based on high elasticity & creep resistance of ceramics and corrosion resistance, ceramics have unique advantages in the fields of refrigeration, chemical industry and environmental protection.

WPCR01

4.Ceramic Pressure Transmitter

Winsen ceramic pressure transmitter is made of own designed pressure core, it convert pressure value into standard voltage signal output through high reliable amplifying circuit and accurate temperature compensation circuit. The whole stainless delicate structure and plastic elements with high-strength enhance its anti-corrosion character, which make the product meet demands in different application occasions. It has various output way and connector, and it also could be customized. It is widely used in water pump, smart water supplying, air compressor, cars, air conditioners, water dealing device, controlling gas and liquid pressure.

WPCH01

WPCH02

WPCH04

Isolation-Film Type

1.Isolation-Film Pressure Sensor

Winsen pressure core encapsulated by high precision imported diffused silicon pressure sensitive chip and mature manufacturing technology. As a high performance pressure sensitive element, it can be easily amplified signal and integrated to a transmitter with standard signal output. Winsen can undertake special customization according to the needs of users, such as full welded structure, wide temperature compensation, customized shape, high reliability, strong impact and vibration resistance.

WPAK63

WPAK67

WPAK69

2.Isolation-Film Pressure Transmitter

Winsen diffused silicon pressure transmitter is integrated with high-precision diffused silicon pressure core, the internal special integrated circuit converts the sensor millivolt signal into a standard current signal, which can be directly connected with the computer interface card, control instrument, intelligent instrument or PLC, and the current output mode can be used for remote transmission. It's widely used in process control, automobile, medical equipment, HVAC and other fields.

WPCK07

Level Transmitter

Winsen level transmitter included a high-performance diffusion silicon piezoresistive pressure sensor as the measuring element to accurately measure the hydrostatic pressure proportional to the liquid level depth. The internal dedicated integrated circuit converts the sensor millivolt signal into a standard (current or voltage) signal output, establishes a linear correspondence between the output signal and the liquid depth, and realizes the measurement of the liquid depth. The product has high precision and small volume. It can be directly put into the liquid to measure the liquid height from the end of the transmitter to the liquid level. It is convenient to use. It is applicable to liquid level measurement and control in the fields of petroleum, chemical industry, power plant, urban water supply and hydrological exploration.

WPCK81

Smart Pump

Valve Control

Industrial Field

MEMS Plastic Package Pressure Sensor

Winsen plastic package pressure sensor includes high-precision MEMS pressure sensitive chip and mature production process with standard pins structure and convenient to use. Plastic package pressure sensor is only suitable for dry and no-corrosive gas. Different ranges, output modes and low cost OEM solution can be customized according to customer requirements.

WPAS01

WPAS02

1.Dissolved Oxygen

The ZWO1 dissolved oxygen detection module is a general-purpose module that uses electrochemical principles to detect the dissolved oxygen content in water, with good selectivity and stability. Digital signal output is adopted, which is convenient to use. ZWO1 is a universal module designed and manufactured by closely combining mature electrochemical detection technology and sophisticated circuit design.

ZWO1

2.PH

The ZW03 PH water quality sensor module is a universal module that uses electrochemical principles to detect the H+ content in water, with good selectivity and stability. Using the digital signal output, very easy to use. ZW03 is designed and manufactured with mature electrochemical detection technology closely combined with sophisticated circuit design.

3.ORP

ZW-ORP101 is a primary battery type ORP water quality detection sensor module. Using the relationship between the ORP value of the test solution and the measured potential difference, the ORP value of the solution to be tested is determined by the potential difference measured by the working battery composed of the electrode and the counter electrode in the solution to be measured through the sensor.

Aquaculture

Industrial Field

Water Quality Detection

4.Conductivity

ZW-C101 sensor is an electrochemical conductivity water quality detection sensor. By applying a constant voltage at both ends of the electrode, the solution resistance changes the current of the measuring electrode and conforms to the ohm's law. The conductivity value replaces the electrical resistivity value so that measure the electrical conductivity of the solution.

ZW-C101

5.TDS

ZW-TDS TDS water quality detection module is a universal module that uses digital signal output, which can be used to detect the content of total dissolved solids (TDS) in water, and have good selectivity and stability.

ZW-TDS

6.Residual Chlorine

ZW-RCL101 residual chlorine detection module is a universal sensor module, which uses the electrochemical principle to detect the residual chlorine concentration in the tested solution, and has good selectivity and stability. Using digital signal output for easy to use. ZW-RCL101 is a universal module designed and manufactured with mature electrochemical detection technology and sophisticated circuit design.

ZW-RCL101

Water Quality Detection Sensor

Dissolved Oxygen
MW-O101

PH
MW-PH101

ORP
MW-ORP101

Ammonia& Nitrogen
MW-NH101

TDS
MW-TDS110