

The people for Process Analytics

MZD Analytik GmbH is located near Dresden, Europe's Silicon Valley, the capital of Saxony, Germany. It has set itself the goal of offering modern measuring and automation technology in process analytics. The leading employees of **MZD** have a Doctorate or Master's degree in technical discipline and, thanks to many years of experience, are able to competently solve the problems of measurement and automation technology that are pending in the industry. We place great value on certified quality standards for the products we developed and produced. **MZD** has a well-developed network in Europe and Asia (China) in order to be able to respond competently to all questions of our industrial customers.

Our engineers work in partnership with OEM/ODM's (and customers) from the initial design stage through post-production to ensure customer satisfaction throughout all phases of product development.

MZD offers for you both in Europe and Asia

- Project planning, construction and commissioning of measuring equipment, which we plan and act according to your task
- Coordination of all services, including our cooperation partners in some more complex tasks (general contractor)
- Calibration and adjustment of our measuring instruments



MZD Analytik GmbH supply products as follows :

Moisture in Gas	0~20,000ppb or 2,000ppm		
H2S Gas Analyzer	0~100ppm up to 5000ppm	Cl2 Gas Analyzer	0~500ppm up to 30%
HCl Gas Analyzer	0~50ppm up to 500ppm	NH3 Gas Analyzer	0~15ppm up to 500ppm
O2 Gas Analyzer	0~10ppm up to 100%	O3 Gas Analyzer	0~10ppm up to 5000ppm
H2 Gas Analyzer	0~100%	CH4 Gas Analyzer	0~500ppm up to 100%
C2H2 Gas Analyzer	0~500ppm up to 100%	CmHn Gas Analyzer	0~500ppm up to 100%
CO Gas Analyzer	0~200ppm up to 100%	CO2 Gas Analyzer	0~50ppm up to 100%
SO2 Gas Analyzer	0~50ppm up to 100%	NOx Gas Analyzer	0~50ppm up to 100%
He/Ne/Kr/D2/SF6/R125 Gas	0~100%		
Thermal Conductivity analyzer			two-component gas (%)
Infrared photometry analyzer			CO,CO2,CmHn,N2O,SO2
Ultraviolet photometry analyzer			SO2,NO,NO2,O3,Cl2,H2S
Laser analyzer			H2O2,NH3,H2O,CO,CH2O...
Medical Oxygen Analyzer			H2O,O2,CO,CO2
Mutigas Analyzer	Up to six gases components		
Bulk Moisture	0~100%	Moisture in Oil	0~100%
Water quality analyzer			
Fouling Monitoring	0~1000µm	Turbidity	0~4000NTU/FNU
Dissolved Oxygen	0~20mg/L or 200ppm or 200%SAT	PH	0~14pH
ORP	-1000~1000mv	Conductivity	0~700ms/cm
Salinity	0~133000ppm	Total dissolved solids	0~78g/Kg
SS/MLSS	0~50g/L	Chlorine/Dioxide Chlorine	0~2/5/10ppm
COD	0~50mg/L or 1300mg/L	BOD	0~15mg/L or 350mg/L
TOC	0~20mg/L or 500mg/L		

If you have any demand for different measuring applications, please contact us. We can develop and customize the measuring system to fit your applications and wishes, for your private labeled products!

The basis of our work is the mutual trust between the partners in a long-term successful cooperation. Our service goal is to uncompromisingly achieve the satisfaction of our customers and to be the most important partner concerning industrial measurement technology in the world.

Overview

Electrolysis principle for trace moisture measurement in gas was successfully tested and applied to trace moisture measurement by Keide in 1959. This method provides a continuous industrial measurement solution for trace moisture in non-alkaline gases, which can continuously, online and real-time monitor the trace moisture in various industrial processes.

Principle

The sensor are plated with parallel platinum layers or wound parallel platinum wires, the platinum wires are coated with a hydrated phosphorus pentoxide film. When the gas passes through the electrolytic cell, all of the water is absorbed and and generates phosphoric acid. At the same time, the DC voltage between the platinum wires causes the phosphoric acid to produce an electrolytic reaction to decompose oxygen, hydrogen and phosphorus pentoxide. When the absorption and electrolysis reach a balance, the water entering the electrolytic cell is all absorbed by the phosphorus pentoxide film and then electrolyzed completely. According to Faraday's law of electrolysis and the gas law, the absolute value of moisture in a gas sample can be directly measured according to the electrolysis current.

Application

- Chemicals (Especially for technologies with aggressive gases , PVC / Chlor-Alkali / Fluorine / Polysilicon / Silicone)
- Oil and gas
- Energy/Power Plant
- Air Separation Unit
- Microelectronics(OLED/capacitor/HID)
- Lithium battery
- University and research
- Glove Boxes



Trace Moisture Analyzer



Sensor features

Zirconia ceramic or glass material is optional. The movable construction of electrolytic cell is easy to disassemble and do maintenance.

Installation

- ▲ Corrosive gas: PVDF electrolytic cell, Non-corrosive gas: PVDF or SS stainless steel electrolytic cell
- ▲ The sample gas pressure can reach 3Bar(PVDF)/10Bar(SS)
- ▲ Stable sample gas flow rate 20NI/h or 100NI/h
- ▲ Three-way valve and four-way valve operation, convenient for sensor maintenance and recoating
- ▲ Slight positive pressure protection of compressed air in the sampling unit
- ▲ Filter can be used for unclean gases
- ▲ Electric heating regulator can be used for liquid chlorine evaporation
- ▲ Vacuum pump can be used for the vacuum sample gas
- ▲ The sample gas outlet is recommended to be discharged into the exhaust gas treatment equipment

Some application case:

- ▲ Trace moisture measurement in chlorine at the inlet of the chlorine compressor for protection.
- ▲ Trace moisture measurement in chlorine at the outlet and the final outlet of the chlorine compressor for protection.
- ▲ Monitor the leakage of the precooler to protect the chlorine compressor.
- ▲ Monitor the accuracy of the dew point analyzer at the outlet of the freezer.

Features

❖ Quick and convenient

The navigation menu contains 6 languages, which can be operated easily.

❖ Process safety

4.3" or 7" large size color LCD touch screen, convenient and safe touch operation and debugging

Large size screen with red flashing alarm, clearly visible from long distances and in dark areas

Alarm immediately, safe the process

❖ Alarm event record

Real-time data curve display

Record function for up to 6,000 alarms

❖ Expert calibration function

Multi-point calibration function up to 9 point

❖ Powerful self-diagnosis function

Built-in flow monitoring

Built-in heartbeat monitoring function and watchdog

Monitor the status of analyzer and sensors, and promptly remind customers to take necessary maintenance

High-standard hardware and software security and password protection

❖ Powerful control function

High(low) limit control function

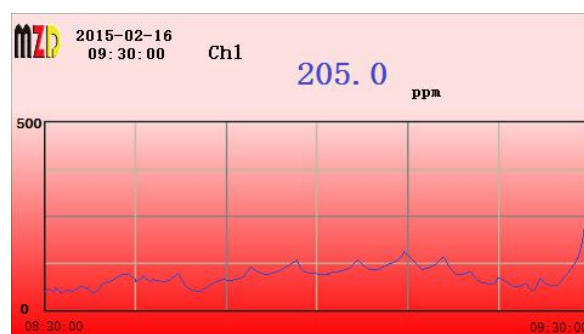
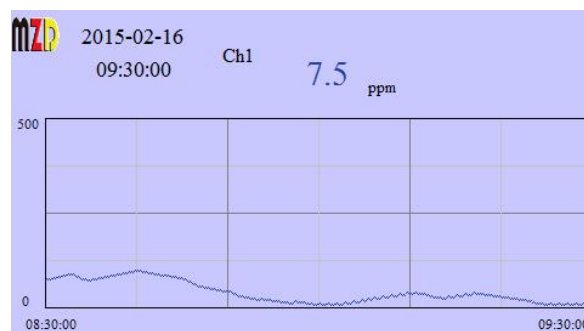
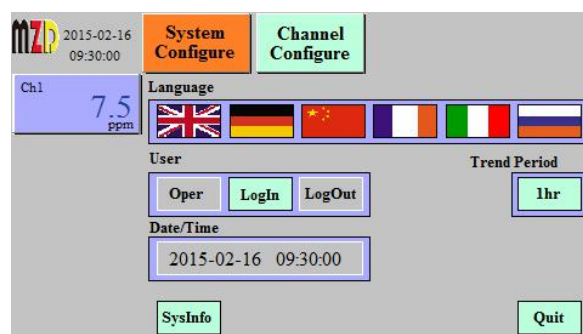
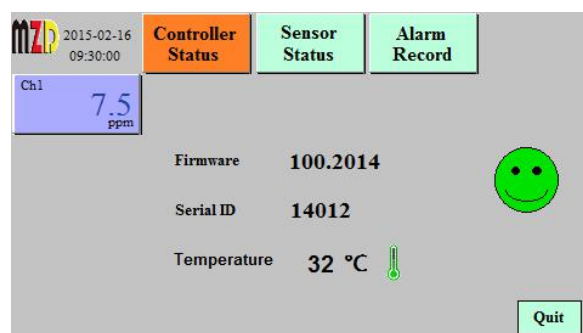
Optional: Timer control(automatic cleaning) function

Optional: analog PID control function

Optional: PWM control function

❖ Flexible fieldbus communication functions for IOT4.0

Optional fieldbus MODBUS, HART, Foundation Fieldbus FF, PROFIBUS PA, PROFIBUS DP, etc.


Trace Moisture Analyzer

Parameters

Sensor Material	Ceramics pillar with Platinum Layer or glass pillar with platinum wires			
Measuring Cell Material	PVDF or Stainless Steel			
Display	4.3" or 7" industrial color touch screen			
Language	Multi-Language (English, German, Chinese, French, Italian, Russian or Customized)			
Range	0~2,000ppm(Max.6000ppm) or 500ppm or 0~20,000ppb			
Display range	0~6,000ppm			
Accuracy	0.4ppm or 5% of measuring value(0~2,000ppm) 0.4ppm or 2% of measuring value(0~500ppm) 10% of measuring value(0~20,000ppb)			
Sensitivity	1ppb(ppb range) or 0.01ppm(500ppm range) or 0.1ppm(2000ppm range)			
Response Time	Less than 1 s			
Action time T90 (up)	Less than 5 s			
Action time T90 (down)	Less than 15 min			
Diagnosis function	Flow monitoring, Sensor and controller self-diagnosis, Heartbeat monitoring			
Event Logger	Internal Flash, up to 6,000 alarm records			
Analog Output(Galvanic)	4~20mA, maximum load 500Ω			
Relay Output(Galvanic)	Relay(2A, 230V AC freely set alarm), System alarm			
Control function	Optional Timer controller, PID analog controller, PWM controller			
Calibration	Expert calibration function, Multi-point calibration function up to 9 point			
Communication	RS485 MODBUS RTU, HART, Foundation Fieldbus FF, PROFIBUS PA, PROFIBUS DP, MODBUS TCP/IP, etc			
Power	80~264V AC, 1A or 19~28V DC, 3A			
Electrical protection	EMI / RFI CEI-EN55011 – 05/99			
Ambient Temperature	-15 ~ 60°C			
Storage and transport temperature	-25 ~ 70°C			
Gas Flow	20NI/h or 100NI/h			
Process Pressure(Max.)	3Bar(PVDF) or 10Bar(Stainless Steel)			
Sample gas temperature	5~65°C			
Process Connection	1/4"NPT thread or KF40 flange			
Diameter of connecting pipe	6mm			
Leakage Level	< 5x10 ⁻⁸ mbar x l / s ⁻¹			
Wire Connections	5Pin			
Sensor Cable	3 ~ 150 meters			
Explosion-proof	Sensor Intrinsic Safety Ex ia optional, Exd IICT4 Controller optional			
Wall-mounted(1~2Channels)	4.3" color touchscreen	ABS, Gray RAL7045	213*185*84mm	IP65
	4.3" color touchscreen	Aluminum, Gray	320*x430x208mm	IP65, Exd IICT4
Laboratory Desktop(1~2Channels)	7" color touchscreen	Aluminum, Black	250x144x184mm	IP40
Portable(1~2Channels)	7" color touchscreen	ABS, Yellow	420x325x180mm	IP67
19" Rack(1~6Channels)	7" color touchscreen	Aluminum, natural-coloured	483x133x238mm	IP40

Overview

Trace moisture analyzer is cost-effective and suitable for stable and continuous measurement of trace moisture of most gases.

Application

- Microelectronics(OLED/capacitor/HID)
- Lithium battery
- University and research
- Glove Boxes
- Metal heat treatment/welding
- Chemicals/Pharmaceuticals
- Air Separation Unit



Parameters

Sensor Material	Ceramics pillar with Platinum Layer or glass pillar with platinum wires
Accuracy	0.4ppm or 2% of measuring value(0~500ppm) 10% of measuring value(0~20,000ppb)
Sensitivity	0.01ppm(ppm range) or 1ppb(ppb range)
Lowest detection limit	5ppb
Response Time	Less than 1 s
Action time T90 (up)	Less than 5 s
Action time T90 (down)	Less than 15 min
Range	0~500ppm or 0~20,000ppb
Power	D—19 ~ 28V DC Power
Analog Output	4~20mA
Electric Connections	4Pin
Display	Optional 128*64Pixel
LED Light	Status LED Light
Process Pressure(Max.)	3Bar
Ambient Temperature	5 ~ 60°C
Process Connection	KF40 flange, Or measuring cell
Housing Material	Stainless steel
Size	Φ 75 x 140 mm, Insertion depth 60 mm
Weight	0.7Kg
Explosion-proof	Sensor Intrinsic Safety Ex ia optional, Exd IICT4 Controller optional

Overview

SMART series intelligent bulk moisture analyzer can be applied to measure the moisture content in most solids, which helps to control product quality and cost (dryer, water, energy, weight, etc.) according to material moisture.

Principle

The capacitance field sensor generates electromagnetic waves (frequency of about 30 MHz), which can penetrate about 15 cm inside the material. Because the change of the moisture content causes the change of the dielectric constant, which makes the electromagnetic field change, the moisture inside the material can be detected.

Application

★Food: grains, flour, soybeans, malt, rapeseed, corn, lentils, noodles, bean products, sugar, beet saccharification, beet flakes, candy, grain starch, coffee raw materials, food processing materials, fish meal, dry food, potato products, Potato flour, crumbs, flakes, seasoning powder, milk powder, spices, nuts, etc.

★Building materials: sand/gravel quartz powder, sand, bricks (raw materials), ceramics (raw materials), mortar, etc.

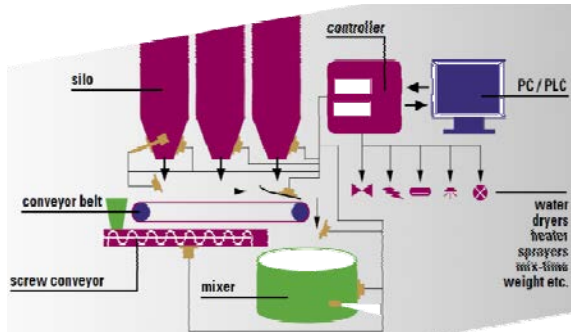
★Chemicals and pharmaceuticals: powder, granule, tablet, pill, flake fertilizer, phosphate, salt, potash, washing powder, polystyrene, foam plastic, synthetic material, PVC, acrylic paint, etc.

★Recycling: biomass, sludge, compost, etc.

★Others: wood shavings, sawdust, wood powder, calcium carbide slag, coal(pieces/powder), tobacco(shag/leaf), cast sand, glass, ceramics, coke, etc.



Bulk Moisture Analyzer



Features

- ★ Can store 6 calibration curves of different materials.
- ★ Detect the average moisture inside the material
- ★ Insensitive to the color and PH value of the material
- ★ Very high repeatability.
- ★ High sensor protection level
- ★ Maintenance-free sensor
- ★ Optional high temperature (up to 130°C) sensor or explosion-proof sensor

Installation

All Smart series smart bulk moisture sensors are dustproof, waterproof, shockproof and knockproof, and optional explosion-proof. The most typical installation positions of the sensor are inside the silo, on the silo wall, on the material conveying ramp, the upper or lower part of the conveyor belt, on the screw conveyor, and mixers and dryers.

Some application case:

- ★ Sludge water treatment, drying, wastewater and sludge process
- ★ Food (cereals, rice, flour, starch)
- ★ Salt products, mines
- ★ Potassium Chloride
- ★ Bulk Cargo Drying Plant
- ★ Ore processing
- ★ Energy/Coal
- ★ Sawdust, wood chips (granule products)
- ★ Porcelain products (granules and semi-finished products)
- ★ Clay processing
- ★ Kaolinit processing
- ★ REA-Gypsum products
- ★ Concrete mixing plant

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Real-time data curve display

Record function for up to 6,000 alarms

❖ Expert calibration function

Multi-point calibration function up to 9 point

❖ Powerful self-diagnosis function

Can store 6 calibration curves of different materials

Built-in heartbeat monitoring function and watchdog

Monitor the status of analyzer and sensors, and promptly remind customers to take necessary maintenance

High-standard hardware and software security and password protection

❖ Powerful control function

High(low) limit control function

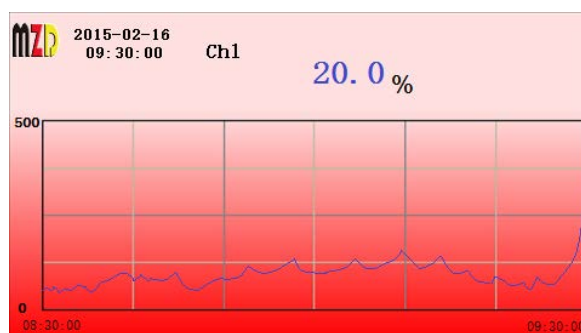
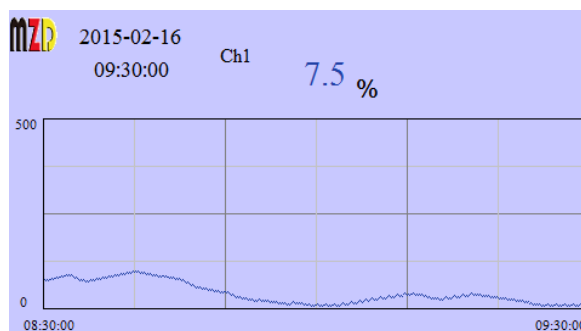
Optional: Timer control(automatic cleaning) function

Optional: analog PID control function

Optional: PWM control function

❖ Flexible fieldbus communication functions for IOT4.0

Optional fieldbus MODBUS, HART, Foundation Fieldbus FF, PROFIBUS PA, PROFIBUS DP, etc.




Parameters

Measuring principle	Capacitive field sensor			
Range	0~100%			
Accuracy	0.1%*			
Sensitivity	150mm			
Response Time	<1s			
Action time T90 (up)	<3s			
Working temperature	4~70°C			
Temperature compensation	Automatic internal temperature compensation			
Ambient Temperature	-35~80°C			
Sensor surface material	Wear-resistant plastic/ceramic/Teflon/rubber			
Material of sensor house	stainless steel			
Distance to material	Contact, or non-contact (maximum 1mm)			
Installation	Clamping flange			
Size	Φ76mm*70mm			
Ingress Protection	IP67			
Explosion-proof	Sensor Ex-Zone 20/22, Ex-Zone 0/1, ATEX Ex II 1/2, EExd ia IIC T6			
*Depends on materials and measurement installation conditions				
Display	4.3" or 7" industrial color touch screen			
Language	Multi-Language (English, German, Chinese, French, Italian, Russian or Customized)			
Diagnosis function	Sensor and controller self-diagnosis, Heartbeat monitoring			
Event Logger	Internal Flash, up to 6,000 alarm records			
Analog Output(Galvanic)	4~20mA, maximum load 500Ω			
Relay Output(Galvanic)	Relay(2A, 230V AC freely set alarm), System alarm			
Control function	Optional Timer controller, PID analog controller, PWM controller			
Calibration	Can store 6 calibration curves of different materials, Multi-point calibration function up to 9 point			
Communication	RS485 MODBUS RTU, HART, Foundation Fieldbus FF, PROFIBUS PA, PROFIBUS DP, MODBUS TCP/IP, etc			
Power	80~264V AC, 1A or 19~28V DC, 3A			
Electrical protection	EMI / RFI CEI-EN55011 – 05/99			
Ambient Temperature	-15 ~ 60°C			
Storage and transport temperature	-25 ~ 70°C			
Ambient humidity	0~90%RH			
Wall-mounted(1~2Channels)	4.3" color touchscreen	ABS, Gray	213*185*84mm	IP65, Ex d IIC T4
	7" color touchscreen	RAL7045	323x237x172mm	optional