Gas Concentration/Density Analyzer

Overview

Measure the density or concentration of a gas directly in the gas line or in the gas tank.

Principle

At the heart of the sensor is a microelectromechanical system (MEMS) with an oscilator in theform of a tuning fork. The natural frequency of the oscillator varies depending on the densityof the gas surrounding it.

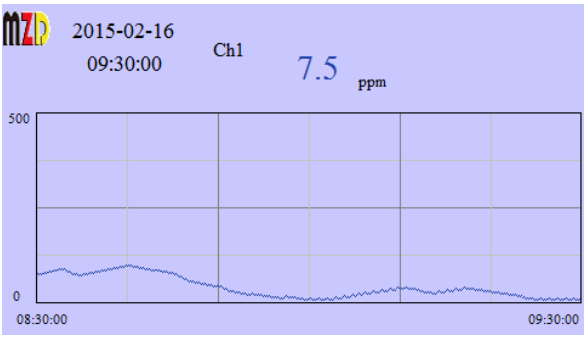
Application

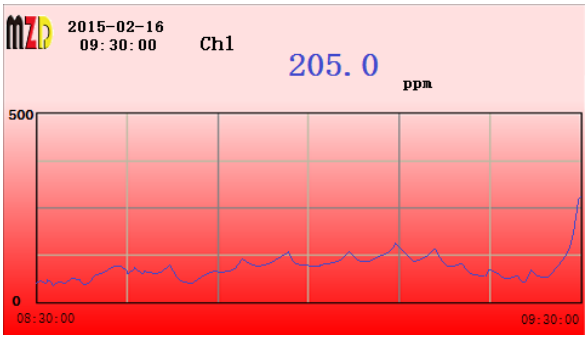
- Monitoring of welding gas mixtures.
- Monitoring of gas mixtures for food packages.
- Monitoring of clean gas.
- Concentration of binary gas mixtures, ideal volume percentages (=molar percentages) in % standard density.
- Permitted gases or mixtures of such gases:
  Nitrogen (N2)
  Oxygen (O2)
  Air
  Carbon dioxide (CO2)
  Neon (Ne)
  Argon (Ar)
  Krypton (Kr)
  Xenon (Xe)
  Hydrogen (H2)
  Methane (CH4)
  Natural gas (maximum permitted helium concentration: 50 ppm)
  Ethyne (acetylene)(C2H2)
  Ethene(C2H4)
  Ethane (C2H6)
  Propene (C3H6)
  Propane (C3H8)
  Butane (C4H10)
  LPG (supplied as gas)
  Other media may be used after individual clarification

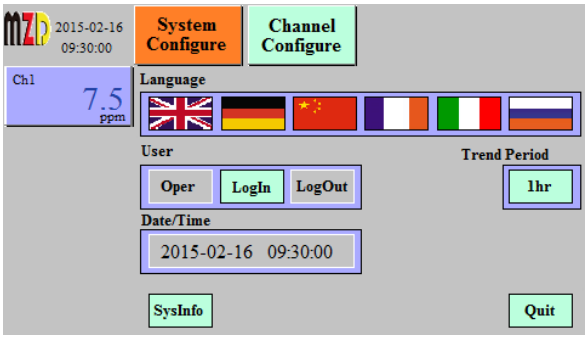
Features

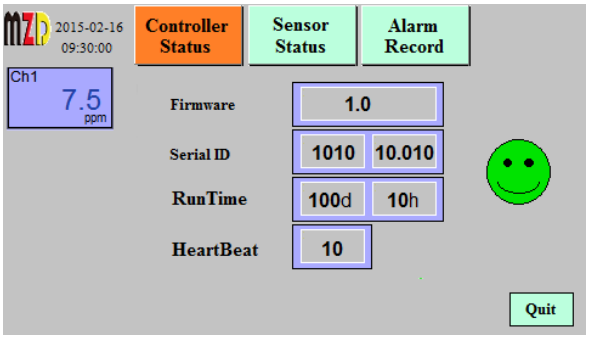
- **Built-in Multi-parameter measurement**
  Measured variable:
  Density in kg/m3
  Temperature in ℃
  Pressure in bar absolute
- **Performance**
  Accuracy of measurement:
  Density: <0.1 kg/m3
  Temperature: <0.8 ℃
  Pressure: <0.04 bar
  With field calibration density: <0.05 kg/m3
  Repeatability:
  Density: <0.015 kg/m3
  Temperature: <0.06 ℃
  Pressure:<0.005 bar
- **Optional mass flow measurement and controller**

Gas Concentration/Density Analyzer









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 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.

Gas Concentration/Density Analyzer

Parameters

Measuring principle	Coriolis force		
Display	4.3” or 7" industrial color touch screen		
Language	Multi-Language (English, German, Chinese, French,Italian, Russian or Customized)		
Range	0~19Kg/m3		
Linearity	Density: <0.1 kg/m3, Temperature: <0.8 ℃, Pressure: <0.04 bar With field calibration density: <0.05 kg/m3		
Repeatability	Density: <0.015 kg/m3, Temperature: <0.06 ℃, Pressure:<0.005 bar		
Sensitivity	Density: <0.001 kg/m3		
Response Time	<1sec		
T90-time	<1sec (at flow rate 20l/h)		
Gas pressure	0~9 bar		
Sample gas temperature	-20 ~ 60℃		
Built-in filter	Copper sintered filter 50 µm		
Analog Output(Galvanic)	4~20mA, maximum load 500Ω		
Relay Output(Galvanic)	Relay(2A, 230V AC freely set alarm), System alarm		
Diagnosis function	Flow monitoring, Sensor and analyzer self-diagnosis,Heartbeat monitoring		
Event Logger	Internal Flash,up to 6,000 alarm records		
Control function	Optional Timer control function,PID,PWM		
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 ~ 50℃		
Storage and transport temperature	-25 ~ 70℃		
Process Connection	6mm Pipe		
Wall-mounted(1~2Channels)	ABS,Gray RAL7045	213x185x84mm	IP65
	Aluminum,Gray	230x200x157mm	IP65, Exd IICT4
Laboratory Desktop(1~2Channels)	Aluminum,Black	250x144x184mm	IP40
Portable(1~2Channels)	ABS,Yellow	420x325x180mm	IP67
19" Rack(1~6Channels)	Aluminu,natural-coloured	483x133x238mm	IP40

Gas Concentration/Density Analyzer

Overview

Gas concentration/density analyzer is cost-effective and suitable for stable and continuous measurement of the density or concentration of a gas directly in the gas line or in the gas tank.

Application

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

Parameters

Measuring principle	Coriolis force
Display	1.8" industrial color LCD, 160*128Pixel
Language	English Menu
LED Light	Status LED Light(NAMUR NE107)
Keypad	Magnetic keypad
Range	0~19Kg/m3
Linearity	Density: <0.1 kg/m3, Temperature: <0.8 ℃, Pressure: <0.04 bar With field calibration density: <0.05 kg/m3
Repeatability	Density: <0.015 kg/m3, Temperature: <0.06 ℃, Pressure:<0.005 bar
Sensitivity	Density: <0.001 kg/m3
Response Time	<1sec
T90-time	<1sec (at flow rate 20l/h)
Diagnosis function	Self-diagnosis, heart beat monitoring
Analog Output	4~20mA
Relay Output	3 Relays, NO, 5A 250VAC/30VDC
Communication	RS485, MODBUS RTU
Power	19 ~ 28V DC Power,1A
Built-in filter	Copper sintered filter 50 μm
Gas pressure	0~9 bar
Sample gas temperature	-20 ~ 60℃
Process Connection	NPT1/2" thread or KF40 flange
Ambient Temperature	-15 ~ 50℃
Ambient Humidity	0~80%RH
Electrical protection	EMI / RFI CEI-EN55011 – 05/99
Housing Material	Aluminum and Stainless steel
Explosion-proof	Exd IICT4 Controller optional

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Note:

MZD reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail.

MZD does not accept responsibility for potential errors or possible lack of information in this document.

MZD Analytik GmbH
Enderstraße 94
01277 Dresden, Germany
Tel: +49-(0)351-850-710-10
Email: info@mzdd.de