

Fouling Monitoring Analyzer

Overview

It's a innovative invention based on MEMS technology, is adopted to provide an industrial measurement solution for continuous monitoring and alarming of the trend phenomenon of scaling (scale, biological bacteria, etc.) in the water treatment process, which can continuously, online and real-time monitor the fouling phenomenon of various industrial processes!

Hazards of scale and biofilm

- ▲ The product quality control is degraded
- ▲ Increased process running time
- ▲ Decreased production efficiency and competitiveness
- ▲ Hygiene and safety control
- ▲ Increased energy consumption
- ▲ Increased chemical emissions
- ▲ The increase of waste...

Effect

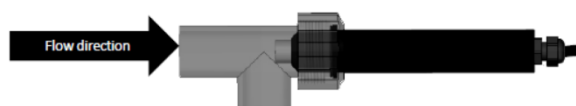
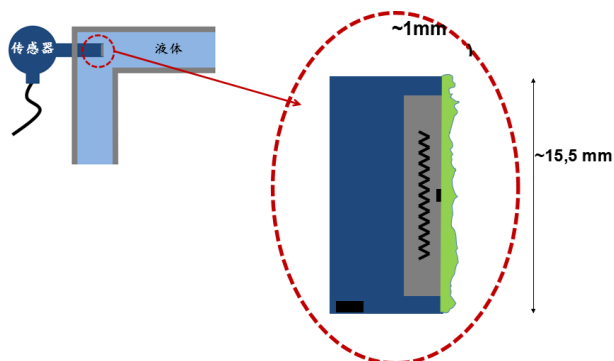
- ★ Improve the heat exchange coefficient of the critical point in time to save energy
- ★ Optimize and control water treatment efficiency
- ★ Optimize and reduce chemical products, reduce emissions
- ★ The risk of germs can be avoided, and biological contamination can be implanted
- ★ Alarm when dirt and biofilm increase abnormally

Typical application

- ▲ Cooling tower
- ▲ Heat exchanger
- ▲ Filter and membrane
- ▲ Industrial water treatment
- ▲ Boiler water treatment
- ▲ Pure water treatment
- ▲ Drinking water supply
- ▲ Chemical industry
- ▲ Power plant
- ▲ Biopharmaceutical industry



Fouling Monitoring Analyzer



Measuring range

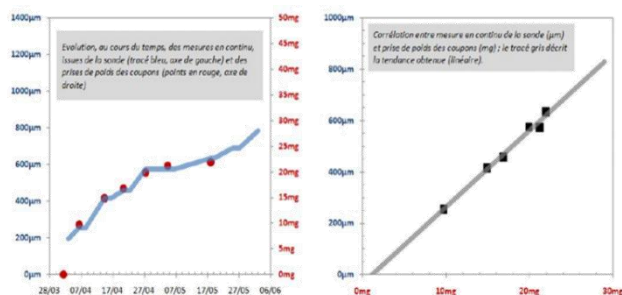
Using a tiny pulse heater, the surface temperature rises due to the increase in the deposition thickness of fouling and biological bacteria. Continuous measurement of the surface temperature is used to monitor the deposition thickness of the fouling and biological bacteria. **The function of scale membrane/biological bacteria sensor is not only to "analyze and measure", but also to provide a solution for monitoring, alarm and adjustment!**

Installation

The sensor can be installed to a bypass pipe to monitor system operation status. It is recommended to use flow meter and valve, one-way valve and others for bypass measuring system.

Application case

Installed in the tertiary cooling system and circulating water cooling tower system to monitor organic fouling and disinfectant treatment efficiency. The monitoring of scale biological bacteria proves to reduce the amount of disinfectant added, optimize the disinfectant treatment, and ensure safe production while reducing. The use of chemicals reduces the impact on the environment and saves energy.



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Features

❖ Quick and convenient

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

❖ Process safety

4.3" 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

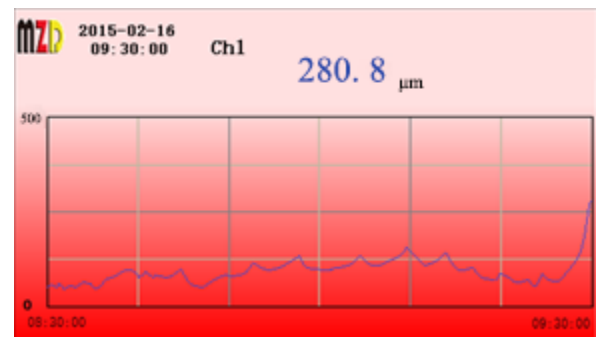
Optional: Timer control(automatic cleaning) function

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.




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Parameters

Sensor Type	Fouling Monitoring			
Range	0~1000µm			
Accuracy	5% FS			
Resolution	1µm			
Working temperature	0~60°C			
Maximum temperature change rate	10°C/minute			
Pressure	Max. 5Bar			
Min. Flow rate	>1000l/h (1" pipe)			
Ambient Temperature	5~50°C			
Ambient humidity	0~90%			
Sensor Size	Φ28mm*190mm			
Sensor Weight	250g			
Process connection	3/4" T-shaped sliding sleeve			
Sensor Material	PVC			
Sensor Ingress Protection	IP65			
Sensor cable length	3m			
Display	4.3" 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	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	4.3" touchscreen	ABS,Gray RAL7045	213*185*84mm	IP65
	1.8" color LCD	Aluminum,Gray	Φ 126*110 mm	IP65

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Sensor Type	Fouling Monitoring
Display	1.8" color LCD, 160*128Pixel
Language	English Menu
LED Light	Status LED Light(NAMUR NE107)
Keypad	Magnetic button
Range	0~1000µm
Accuracy	5% FS
Resolution	1µm
Working temperature	0~60°C
Maximum temperature change rate	10°C/minute
Pressure	Max. 5Bar
Min. Flow rate	>1000l/h (1" pipe)
Diagnosis function	Sensor and controller self-diagnosis,Heartbeat monitoring
Analog Output	4~20mA, Maximum load 500 ohms
Relay Output	2 Relays (2A, 230V AC/DC freely set alarm), 1 Relay (System alarm)
Communication	RS485 MODBUS RTU Slave
Power	19 ~ 28V DC,0.5A
Electrical protection	EMI / RFI CEI-EN55011 – 05/99
Ambient Temperature	5~50°C
Ambient humidity	0~90%
Protection	IP67
Housing Material	Aluminum alloy
Size	Φ126*110 mm
Weight	1.5Kg

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Note:

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