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PRODUCT SOLUTIONS (FIELD INSTRUMENTS)

Application/Solution	Field Instrument						Liquid						
		Ceneral hether Configure Co						interiorist Cos Secur Contest					
Flow Measurement Applications													
Sludge cake	Capacitance type magnetic flowmeter		~			~							
Coal tar	Capacitance type magnetic flowmeter		~		~	~							
Latex	Capacitance type magnetic flowmeter		~										
Oil-laden wastewater	Capacitance type magnetic flowmeter		~										
Pure water	Capacitance type magnetic flowmeter, Vortex flowmeter, Coriolis mass flowmeter				~								
Nitric acid	Capacitance type magnetic flowmeter, Magnetic flowmeter, Coriolis mass flowmeter			~									
Pulp liquid (white liquor)	Magnetic flowmeter		~			~					1		
Waterworks	Magnetic flowmeter, Coriolis mass flowmeter	~											
Sewage works	Magnetic flowmeter, Capacitance type magnetic flowmeter, Coriolis mass flowmeter	~	~										
Coolant for rolling	Magnetic flowmeter, Coriolis mass flowmeter	~											
Abrasive (slurry)	Magnetic flowmeter					~					2		
Hot black liquor	Magnetic flowmeter (for digester)		~	~									
Soil pressure shield	Magnetic flowmeter		~			~							
Steam	Vortex flowmeter							~			3		
Solvent	Vortex flowmeter, Capacitance type magnetic flowmeter, Coriolis mass flowmeter				~		~						
Acetic acid	Capacitance type magnetic flowmeter, Coriolis mass flowmeter		~										
Dip process	Capacitance type magnetic flowmeter, Magnetic flowmeter		~			V							
Wastewater	Capacitance type magnetic flowmeter		~	~									
Electrolytic cell	Magnetic flowmeter		~	~									
Solutions													
	D/P transmitter without impulse line (for flow measurement)	V					~	~			5		
	Level transmitter without impulse line (for level measurement)	V									6		
Solution using electronic transmitter	Advanced diagnostics with multi-sensing technology	✓									7		
	Level meter for underground tank	✓											
	Level meter with double capillaries for process fluid temperature compensation	~											
	Radar level meter	<i>'</i>							~	~			
Solution using non-wetted sensor	Ultrasonic level meter			~									
Solution using temperature sensor	Temperature transmitter			~			~	~			8		
3 F	Capacitance type magnetic flowmeter	~											
Solution using special magnetic flowmeter	Magnetic flowmeter			·									
	magnono nowinistei												

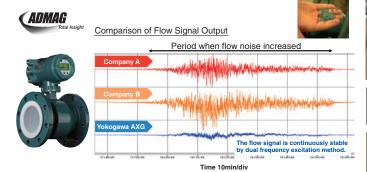
PRODUCT SOLUTIONS (ANALYTICAL PRODUCTS)

Applications	Analyzers Industries													
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			/	ector C	Micher	ical	Holy bill there case cent					ent diterestants		
		_	nice	ont	Cher	dPha			citic	`\ `\$/	ement	citic	ners	
		/ ९	11/6	10,0)III \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	705 V	0, 6	71.\G	% / C	30/6	\$\$\\\	10,00	Example	
GAS ANALYZERS														
Controls LPG caloric values	Gas density meter	~							~			~		
Measures O ₂ concentration of flue gas in catalyst regeneration towers	Zirconia oxygen analyzer, TDLS		~	~									11	
Measures 02 concentration in semiconductor-related diffusion and drying furnaces and in LCD manufacturing processes	Zirconia oxygen analyzer		~								~	~		
Measures O ₂ concentration of flue gas in hot-blast stoves and iron & steel heating furnaces	Zirconia oxygen analyzer, TDLS		~			~								
Measures O₂ concentration of flue gas in pulverized coal boilers	Zirconia oxygen analyzer, TDLS		~	V			~	~		~				
Measures O₂ concentration of flue gas in LNG boilers	Zirconia oxygen analyzer, TDLS							~	~					
Measures O ₂ concentration in fired heaters of refineries	Zirconia oxygen analyzer, TDLS			~									10	
and petrochemicals Measures O ₂ concentration of flue gas in cement kilns	Zirconia oxygen analyzer			·						~				
			/										45	
Measures NOx concentration of flue gas in gas engines	Stack gas analyzing system							~					15	
Measures flue gas concentration in city incinerators	Stack gas analyzing system Stack gas analyzing system / zirconia high temperature	~	-										15	
Process analyzers for cement plants Measures humidity in tantalum capacitor steam pyrolysis	humidity, paramagnetic oxygen, infrared CO analyzers Zirconia high temperature humidity									~			15	
furnaces	analyzer										~			
Measures humidity in dyeing and extraction processes	Zirconia high temperature humidity analyzer, TDLS											~		
Measures O ₂ concentration of flammable gases	Paramagnetic oxygen analyzer, TDLS		~	~					~			~	12	
Measures density of FCC off gas	Gas density meter			~										
Measures dust in fuel gas in pulverized coal boilers (electric power / pulp & paper)	Dust monitor						~	~					15	
Analyzes a gas or liquid sample by separating components	Process Gas Chromatograph		~	V		~			~				9	
LIQUID ANALYZERS														
Process liquid analyzers for electrolysis plants	pH, ORP, inductive conductivity, turbidity			~										
Measures low turbidity for water quality control in water	analyzers / residual chlorine analyzer Turbidity, pH, conductivity, alkalinity	~												
supply systems Continuous monitoring for sugar juice leakage detection	analyzers / residual chlorine analyzer												10	
in boiler feedwater at sugarworks	Inductive conductivity analyzer	/			~								13	
Measures conductivity at pulp & paper plants Measures conductivity in CIP systems at	Inductive conductivity analyzer						~						13	
food/beverage/pharmaceutical plants	Sanitary conductivity analyzer				~								13	
Measures concentrations of developer and hydrofluoric acid in semiconductor processes	Inductive conductivity analyzer										~		13	
Measures pH of titanium slurry	pH analyzer			~										
Measures pH of pulp wastewater	pH analyzer						~							
Measures pH at breweries	pH analyzer				~									
Measures pH in methane fermentation bioreactors for sludge treatment	pH analyzer			~	~							~		
Measures pH at wastewater treatment plants and food/pharmaceutical manufacturing	pH, ORP, conductivity analyzers			~	~	~	~				~	~	13	
Measures pH in aeration towers	pH analyzer				~									
Measures water quality of wastewater treatment at plants	pH, turbidity meters / total	~	~	V	~	~	~	~	~	~	~	~	13	
Measures pH/ORP in cyanide wastewater treatment	nitrogen/phosphorus analyzer ORP, pH analyzers			~								~	.0	
Measures pH/ORP in chromated wastewater treatment	ORP, pH analyzers													
Measures pH in desulfurization systems (lime-gypsum				~								/		
method) Measures dissolved oxygen, ORP, and MLSS in sewage	pH analyzer Dissolved oxygen, ORP analyzers /		~			~	~	~						
treatment systems (batch method) Measures dissolved oxygen in sewage treatment systems	MLSS analyzer	~											13	
(OD method)	Dissolved oxygen analyzer	~											13	
Measures dissolved oxygen in sewage treatment systems (continuous aeration method)	Dissolved oxygen analyzer	~											13	
Measures residual chlorine in effluent from sewage treatment systems	Residual chlorine analyzer	~												
Measures concentration of beer extract at breweries	Liquid density analyzer				~									
Next-generation component analyzing system	FT-NIR analyzer			~	~		~	~			~	~		
Deviation output alarms directly after leakage in the heat	Conductivity analyzer		~										14	

APPLICATIONS

Stable Flow Measurement against Slurry Fluid

The ADMAG Total Insight AXG/AXW employs excitation method that is not affected by flow noise to achieve stable measurement.



Applications:

Measurement of high concentration slurry liquids (solid mixture liquids).

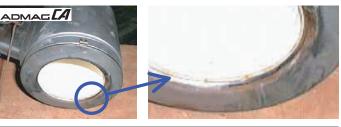
Features:

The "Dual Frequency Excitation Method" can achieve both excellent stability and quick response in flow measurement reducing the negative impact generated from slurry noise. It also has a function to detect slurry noise and link it to the alarm output.

Benefits:

The "Dual Frequency Excitation Method" realizes stable flow measurement even under adverse conditions with process fluid noise. It is possible to issue an alarm output of changes that suddenly increased slurry concentration while continuing stable measurement. This is applicable not only to slurry fluids but also to low conductivity fluids.

Stable Flow Measurement of **Highly Abrasive Fluid**



Use of ceramic, harder than everything but diamond, as the flowmeter tube prevents abrasion.

Magnetic flowmeter with non-wetted electrodes prevents the abrasion of the electrodes and the effects of noise of highdensity slurry fluid.

Applications:

Measurement of a highly abrasive base material (slurry) for producing aluminum hydroxide.

Features:

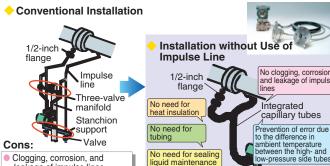
Use of a ceramic flowmeter tube and non-wetted electrodes.

Benefits:

Abrasion-free lining and electrodes lengthen the maintenance interval

D/P Transmitter for Orifice Flowmeter without Impulse Line

Advantages Compared with Conventional Installation



leakage of impulse lines

Difficulty in maintaining sealing liquid

High costs of tubing High costs of heat insulation

capillary tubes ention of error due to the difference in veen the high- and pressure side tubes liquid maintenance -Stanchion Reduced No clogging tubing and heat of impulse

Applications:

Perfect solution to difficulty in maintaining impulse lines for flow measurement with a differential pressure transmitter.

Use of small, 1/2-inch diaphragm seals in place of impulse lines.

Benefits:

No clogging or leakage of impulse lines, and reduced tubing and heat

Level Transmitter without Impulse Line (for Sealed Tank)



Example of Installation

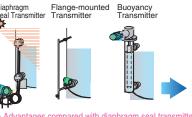
A temperature

compensation

side minimizes error due to ambient

temperature.

capillary for high-pressure



Elimination of error caused by ambient temperature change between high- and low-pressure capillary tubes. No need for treatment of capillary tubes. No need for stanchion to mount the transmitter

No more clogging of impulse line No more trouble of sealing liquid maintenance.

Dramatically reduced maintenance work. Safer maintenance

Applications:

Prevents problems associated with impulse lines for level measurement with a differential pressure transmitter.

Features:

A temperature-compensation capillary cancels the temperature differences between the high- and low-pressure sides.

Benefits:

Elegant installation with minimal error due to ambient temperature

Streamlined instrumentation for saturated steam application

- ◆ Multi-variable vortex flowmeter with built-in temperature sensor.
- ◆ Directly output mass flow rate of saturated steam. ◆ Suitable for high pressure steam application.
- ◆ High temperature up to +400°C.









Applications:

Lower cost instrumentation for saturated steam.

Features:

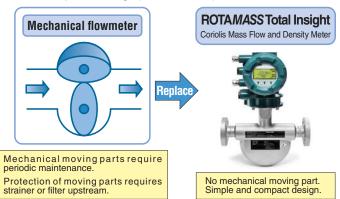
Real-time temperature compensation by built-in temperature sensor.

Benefits:

Safer and stable measurement without external temperature sensor

High accurate mass flow measurement

- ◆ Mass flow for nearly all flowing fluids.
- ♦ Wide temperature range (-196 to +350°C).



Applications:

High accurate and stable measurement of mass flow

Features:

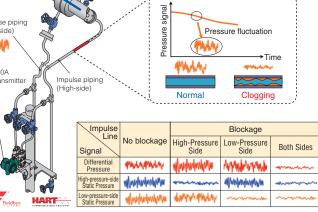
Vibration-resistant due to counterbalanced dual measurement system.

Benefits:

High accuracy ±0.1%. Reduction of maintenance time.

Advanced Diagnostics with Multi-Sensing Technology

Impulse piping Pressure fluctuation FJX110A High-Pressure



Applications:

A transmitter monitors the status of impulse blockage.

Features:

Blockage detection is available for high side, low side and both sides of impulse line.

Benefits:

Preventive maintenance by impulse line detection provides increased plant operating uptime.

Temperature Measurement with Higher Accuracy

Pt100, Pt200, Pt1000, Ni120 etc.

Field Control room IEC Class A RTD (external wiring Range: 0° to 500°C Heating (monitoring/computing/ mediur YTA temperature Intrinsically safe, explosion proof, dust ignition proof type model is also available. Thermocouple

The optimum sensor can be easily selected from a variety of options.

Applications:

Гуре B, K, R, S, T etc.

Higher-accuracy temperature measurement.

High reliability, Variety of sensor input, self-diagnostics fucntion.

Available to variety of applications.

APPLICATIONS

9

Process Gas Chromatograph

Analytical Product

The GC8000 with multiple ovens and multiple system clocks allows flexible configuration to meet customers' needs even in complex applications.

Complex applications are divided into smaller simultaneous measurements, and optimizing the analysis condition of each measurement reduces the analysis time. The GC8000 has a built-in 12-inch color touchscreen display that improves operation and simplifies maintenance. At the touch of the screen, all of the analytical parameters and measurement results can be easily accessed.



Applications:

Petrochemical, oil refining, metal refining, inorganic chemical, and other industries.

Features.

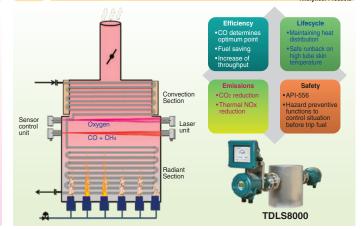
High-speed analysis with multi-oven structure, improved operation with a large touch panel, high reliability, improved functionality.

Benefits:

Controls quality and improves yield.

10 Tunable Diode Laser Spectrometer

Analytical Products



Applications:

Combustion, Safety, and Lifecycle Management System for Fired Heaters in Hydrocarbon Processing Industries.

Features

Laser based technology for combustion control is a design consideration for heater applications where a single sample point will not provide a representative sample. It has a response time of < 5 seconds and can measure across a radiant section up to 30m.

Benefits:

Optimize the combustion, improve safety, and extend the life time of heat exchange coils inside.

13 FLXA202/FLXA21 2-wire Liquid Analyzer

Analytical Products

The FLXA202/FLXA21 is a next-generation liquid analyzer that can be flexibly configured to measure pH/ORP, contacting conductivity, inductive conductivity, or dissolved oxygen. The FLXA21 also allows up to two sensors of the same type to be installed, thus reducing installation cost and space, and enabling a highly reliable backup system to be constructed.



Applications:

Measuring pH/ORP and conductivity in sewage treatment facilities and various industrial processes.

Features

- Support for up to two sensors and digital communications for increasing reliability and reducing maintenance and instrumentation costs.
- Advanced functions such as self-diagnostics capabilities for sensors, displaying sensor status and estimated maintenance time, enabling quick setup.

Benefits:

Lower installation cost, and construction of a highly reliable backup system

2-wire Conductivity Analyzer FLXA202/FLXA21

The FLXA202/FLXA21 receives inputs from two conductivity cells located at different points in the process.



Heat exchanger monitoring by dual sensors and deviation output alarms after leakage in the heat exchanger

Applications:

Leak detection of heat exchanger

Features:

- Output of calculation results from two measuring values.
- This feature is also used for the measurement of the efficiency of ion exchange resin.

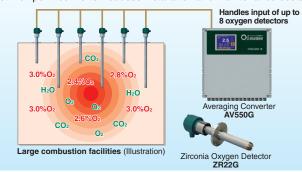
Benefits:

- Lower installation cost (Tow sensors one converter).
- No calculation is required in DCS.

11 Zirconia Oxygen Averaging Converter

A multiple point oxygen measurement system is required for situations when gas stratification in the flue duct affects combustion control. The

AV550G Averaging Converter can accept inputs from up to eight zirconia oxygen detectors. It sends output signals for the individual concentrations as well as averages of multiple oxygen concentrations. A robust multipoint converter reduces installation and maintenance costs.



Applications:

 $\label{lem:combustion} Combustion \ control\ in\ large\ utility\ boilers\ or\ various\ industrial\ furnaces.$

Features:

Color touch screen operation, powerful new process diagnostic tools and creative hardware design.

Benefits:

Optimizes fuel usage, minimizes atmospheric emissions and reduces energy consumption.

Paramagnetic Oxygen Analyzer (Flameproof/General-purpose Type)



Applications:

Prevention of explosion hazards.

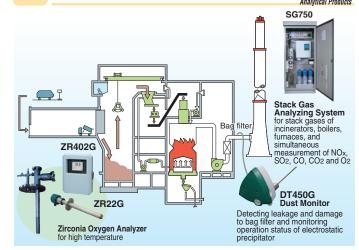
Features.

Measures oxygen concentrations of explosive flammable gases.

Benefits:

Safety control at plants.

15 Stack Gas Analyzing System



Applications:

Incinerators, boilers, furnaces, etc.

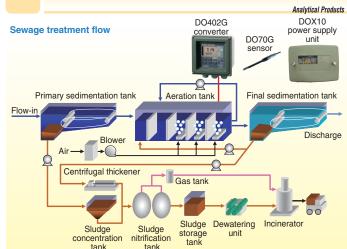
Features:

Simultaneous measurement of multiple components.

Benefits:

Environmental protection and energy saving.

16 Optical Dissolved Oxygen Analyzer



Applications:

Measuring dissolved oxygen at sewage treatment facilities

Features:

Easy maintenance, resistant to dirt, stable measurement even in fine bubbles

Benefits:

- The installed converter DO402G can be connected to DO70G sensor.
- Reduction of maintenance man-hours.

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