

# **Product Solution Catalog**

(Field Instruments and Analyzers)



Bulletin 00A03B02-01E

[www.yokogawa.com](http://www.yokogawa.com)

**YOKOGAWA** 

# Field Instruments

## Pressure Transmitters

### DPharp EJX Series Differential Pressure and Pressure Transmitters



Liq  
Gas  
Stm

- ◆ Ultra-high performance, the flag-ship model of DPharp.
  - High accuracy and fast response.
- ◆ Unique features include;
  - Multi-sensing (Differential pressure and Static pressure).
  - Output signal characterizer.
  - Multi-functional indicator with local parameter setting function (optional).
  - Alarm output for measured pressure and static pressure (optional).
- ◆ High reliability.
  - SIL2 certified by TÜV.

### DPharp EJA-E Series Differential Pressure and Pressure Transmitters

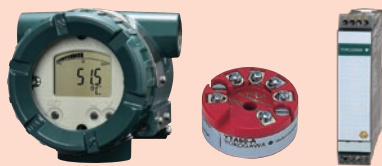


Liq  
Gas  
Stm

- ◆ A best-selling pressure transmitter series featuring silicon resonant sensor.
  - Fast response, corresponding to various applications.
  - Excellent long term stability slashes maintenance cost.
- ◆ Unique features include;
  - Multi-sensing (Differential pressure and Static pressure).
  - Output signal characterizer.
  - Multi-functional indicator with local parameter setting function (optional).
  - SIL2 capable.
  - 1 to 5 V low power output type available.

## Temperature Transmitters

### YTA Series Temperature Transmitters



- Field mount type**
- ◆ Built to last: Dual-compartment housing realizes high resistance capability to harsh environments.
  - ◆ Safety first: SIL2 certified right out of the box - At Yokogawa safety is not an option.
  - ◆ Excellent long term stability: Industry leading 5 year stability guaranty.
- Head mount type**
- ◆ A head mount type conforms to the standard DIN form B head mounting.
- Panel mount type**
- ◆ A panel mount type conforms to the standard DIN rail mounting and supports HART communication protocol.

## Field Wireless Infrastructure

### YFGW410 Field Wireless Management Station



### YFGW510 Field Wireless Access Point



- ◆ Single or redundant configuration with YFGW410
- ◆ Redundant switch over less than 1 second by YFGW410
- ◆ Highly reliable redundant communication : DUOCAST
- ◆ Management of 20 YFGW510s (max.) by YFGW410
- ◆ Management of 500 wireless devices (max.) by YFGW410
- ◆ Management of 100 wireless devices (max.) by YFGW510

## Field Wireless IO devices

### FN310 Field Wireless Multi-Protocol Module



Wired HART  
transmitter  
  
MODBUS  
device  
(SENCOM)

### FN510 Field Wireless Multi-Function Module



DI / DO, AI  
  
Pulse count  
  
Vibration  
sensor  
(LN01)

### EJX B Series Wireless Differential Pressure/Pressure Transmitter



Liq  
Gas  
Stm

### YTA510 Wireless Temperature Transmitter



### YTMX580 Multi-Input Temperature Transmitter



**Function**

- ◆ Convert wired transmitter, sensor or device to wireless

**Function**

- ◆ Sensor is identical to wired transmitter

**Function**

- ◆ 8 analog inputs

**Common Functions**

- ◆ ISA100 Wireless™ certified device
- ◆ Network Topology --- Star, Mesh, Designed mesh (mesh route is designed manually)
- ◆ Power supply --- Battery or supply from HART BUS line
- ◆ Function as network device --- IO auto, IO, IO and repeater, repeater
- ◆ Update period --- from 0.5 to 3600 seconds (depend on function)
- ◆ Ex Certification --- ATEX, FM, CSA, IECEx



# Gas Analyzers

## Gas Chromatograph    Oxygen Analyzers

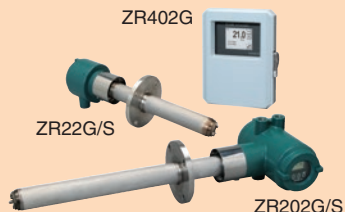
### GC8000 Process Gas Chromatograph



Touch Panel

- ◆ Fast analysis with Max. 3 ovens.
- ◆ Parallel GC by GC Module concept.
- ◆ The large 12.1 inch color LCD touch screen.

### ZR402/ZR202 Zirconia Oxygen Analyzers



- ◆ Measurement with probe directly inserted into furnace or boiler
- ◆ Integrated and separate types available
- ◆ Also can be used as a high temperature humidity analyzer
- ◆ Fully field-repairable probe
- ◆ HART communication
- ◆ Explosionproof (FM, CSA, ATEX) (ZR22S, ZR202S)

### MG8G/MG8E Paramagnetic Oxygen Analyzers



- ◆ Ideally suited for measuring oxygen concentrations of flammable gases
- ◆ MG8E has flameproof construction

### AV550G Averaging Converter



- ◆ Capable of accepting inputs from up to 8 oxygen detectors and 8 individual outputs are available
- ◆ Averaging of multiple point oxygen measurements is ideally suited for combustion control

### OX400 Low Concentration Zirconia Oxygen Analyzer



- ◆ Capable of measuring a wide range of concentrations, from 0-10 ppm up to 0-100 vol% O<sub>2</sub>.
- ◆ Oxygen concentration control in semiconductor-related diffusion and drying furnaces and in LCD manufacturing processes

### OX100/OX102 Limiting Current Type Oxygen Analyzers



- ◆ Ideally suited for measuring oxygen concentrations of N<sub>2</sub> purged flow-soldering machine, etc.

## Laser Analyzers

### TDLS8000 Tunable Diode Laser Spectrometer



- ◆ In-line analysis of gases of O<sub>2</sub>, CO, CH<sub>4</sub>, NH<sub>3</sub>, H<sub>2</sub>O, and many more NIR absorbing gases in refinery and petrochemical.
- ◆ Large HMI provides easy operation and control of up to 4 analyzers at the same time
- ◆ IEC61508 SIL designed & approved, SIL 2
- ◆ IECEx, ATEX, cFMus hazardous area approvals based on Nonincendive/Type n and flameproof
- ◆ HART and Modbus TCP communications standard

## Gas Density Meter

### GD402/GD40 Gas Density Meter



- ◆ Measures gas density with high sensitivity and quick response. Also capable of displaying specific gravity and molecular weight derived from the density data.
- ◆ Can be used in hazardous areas with explosive atmospheres (FM, CSA, TIIS)
- ◆ Hydrogen purity and replacement meter for power generators

## Gas Calorimeter

### CM6G Gas Calorimeter



- ◆ Ideally suited for measuring calorific values of gases in applications including city gas and iron & steel gas

## Dust Monitor

### DT450G Dust Monitor



- ◆ Automatic range setup and no manual adjustment required
- ◆ Triboelectric detection method unaffected by dust adhesion
- ◆ For bag filter detection and adjustment of electrostatic precipitator efficiency

## Infrared Gas Analyzers

### IR202/IR200/IR400 NDIR Type Infrared Gas Analyzers



IR202



IR200







IR400

#### Measuring Components









- ◆ IR202: NO, SO<sub>2</sub>, CO<sub>2</sub>, CO, CH<sub>4</sub>, O<sub>2</sub>
- ◆ IR200: CO<sub>2</sub>, CO, CH<sub>4</sub>, SO<sub>2</sub>, NO, O<sub>2</sub>
- ◆ IR400: NO, SO<sub>2</sub>, CO<sub>2</sub>, CO, CH<sub>4</sub>, O<sub>2</sub>

# Liquid Analyzers

## pH/ORP Analyzers

PH450G 4-Wire pH/ORP Converter	FLXA202/FLXA21 2-Wire pH/ORP Transmitter	PH71/PH72 Personal pH, pH/ORP Meters	pH/ORP Sensors for Process Use
			
<ul style="list-style-type: none"> <li>◆ Large, high-resolution graphical display and touchscreen operation for ease of use</li> <li>◆ Diagnostic functions for minimum maintenance</li> <li>◆ Temperature compensation and predefined pH buffer tables for best accuracy</li> <li>◆ 8 languages</li> </ul>	<ul style="list-style-type: none"> <li>◆ 12 languages.</li> <li>◆ Touch screen display.</li> <li>◆ Two sensors can be connected.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Waterproof (IP67) construction allows measurement in wet environment</li> <li>◆ Various convenient functions: 300-point data memory, alarm clock, etc.</li> </ul>	<p>FU24F FU20F SC25F SENCOM® digital sensor</p> <p>PH8EFP/ PH8ERP</p> <p>FU20</p> <ul style="list-style-type: none"> <li>◆ Appropriate sensor for your application</li> </ul>




## Conductivity Analyzers

SC450G 4-Wire Conductivity/ Resistivity Converter	DC402G Dual Cell Conductivity/ Resistivity Converter	FLXA202/FLXA21 2-Wire Conductivity Transmitter	ISC450G 4-Wire Inductive Conductivity Converter	FLXA202/FLXA21 2-Wire Inductive Conductivity Transmitter	Conductivity Sensors	ISC40G/S Inductive Conductivity Sensors	SC72 Personal Conductivity Meter
							
<ul style="list-style-type: none"> <li>◆ Large, high-resolution graphical display and touchscreen operation for ease of use</li> <li>◆ Diagnostic functions for minimum maintenance</li> <li>* Temperature compensation, predefined OIML buffer tables, cell fouling monitoring for best accuracy</li> </ul>	<ul style="list-style-type: none"> <li>◆ Differential, ratio or calculated outputs</li> <li>◆ Universal conductivity/resistivity, software switchable</li> <li>◆ Matrix temperature compensation for pure water applications</li> <li>◆ Easy to use EXA control panel</li> <li>◆ USP&lt;645&gt; monitoring</li> </ul>	<ul style="list-style-type: none"> <li>◆ 12 languages.</li> <li>◆ Touch screen display.</li> <li>◆ Two sensors can be connected.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Large, high-resolution graphical display and touchscreen operation for ease of use</li> <li>◆ Diagnostic functions for minimum maintenance</li> <li>* Temperature compensation and predefined OIML buffer tables for best accuracy.</li> </ul>	<ul style="list-style-type: none"> <li>◆ 12 languages.</li> <li>◆ Touch screen display.</li> </ul>	<p>SC4A-AD-09</p> <p>SC4A-AD-15</p> <p>SC4A-SA</p> <p>SC4A-SB</p> <p>SC210G</p> <ul style="list-style-type: none"> <li>◆ Appropriate sensor for your application</li> </ul>	<ul style="list-style-type: none"> <li>◆ Measuring range: 100 <math>\mu</math>S/cm 1999 mS/cm with a single sensor</li> <li>◆ Material: PEEK or Teflon (PFA)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Intelligent, portable conductivity meter with waterproof (IP67) construction</li> <li>◆ Various convenient functions: 300-point data memory, alarm clock, etc.</li> </ul>




## Turbidity Analyzers

TB750G Right Angle Scattered Light Turbidity Analyzer	TB400G Scattered-Light Turbidity Analyzer
	
<ul style="list-style-type: none"> <li>◆ User configurable measuring range from 0-0.2 NTU to 0-100 NTU.</li> <li>◆ Highly reliable measurement with excellent linearity and repeatability.</li> <li>◆ In-line connection available</li> <li>◆ Easy-to-clean cell</li> </ul>	<ul style="list-style-type: none"> <li>◆ Surface scattered light method using kaolin, formazin, or PSL (polystyrene latex) for calibration</li> <li>◆ Highly reliable measurement at water supply and sewage systems</li> <li>◆ Measuring range: 0-2 to 0-2000 mg/l (or degrees, unit selectable)</li> </ul>

## Chlorine Analyzers

FC400G Free Available Chlorine Analyzer	FC500G Free Available Chlorine Analyzer	RC400G Residual Chlorine Analyzer
		
<ul style="list-style-type: none"> <li>◆ Non-reagent Type</li> <li>◆ Polarographic method using rotating gold electrode</li> <li>◆ Ideal for measurement of free available chlorine in water supply and distribution systems</li> <li>◆ Field-configurable from 0-1 to 0-3 mg/l for two switchable output ranges</li> <li>◆ Micro processor-based, intelligent converter</li> </ul>	<ul style="list-style-type: none"> <li>◆ Non-reagent Type</li> <li>◆ Polarographic method using rotating gold electrode</li> <li>◆ Ideal for measurement of free available chlorine in water supply and distribution systems</li> <li>◆ Measuring range selectable: 0-1/0-2/0-3 mg/l switchable or 0-5/0-10 mg/l switchable</li> </ul>	<ul style="list-style-type: none"> <li>◆ Reagent Type</li> <li>◆ Polarographic method using rotating platinum electrode</li> <li>◆ Ideal for measurement of residual chlorine in chlorination processes of water supply systems and in cooling water of thermal power stations</li> <li>◆ Measuring range: 0 to 10mg/l</li> </ul>

## Dissolved Oxygen Analyzers


DO402G 4-Wire Dissolved Oxygen Converter	FLXA202/FLXA21 2-Wire Dissolved Oxygen Transmitter	DO70G/DO30G Dissolved Oxygen Sensors
		
<ul style="list-style-type: none"> <li>◆ Long-term stable sensor</li> <li>◆ Display unit in mg/l, ppm, or % saturation</li> <li>◆ Temperature compensation, salt concentration compensation and barometric air pressure compensation for best accuracy</li> <li>◆ Ideal for measurement of dissolved oxygen in aeration tanks at sewage treatment plants, etc.</li> </ul>	<ul style="list-style-type: none"> <li>◆ 12 languages.</li> <li>◆ Touch screen display.</li> <li>◆ Two sensors can be connected.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Measurement object: Measurement of dissolved oxygen in aeration tanks at sewage treatment plants.</li> <li>◆ Measuring range: 0 to 25mg/l (ppm) (DO70G), 0 to 20mg/l (ppm) (DO30G)</li> <li>◆ Type of sensor: Optical DO sensor (DO70G), Galvanic cell DO sensor (DO30G)</li> </ul>

## MLSS Analyzer

SS400G MLSS Analyzer

<ul style="list-style-type: none"> <li>◆ Wide measuring range from 0-1000 mg/l to 0-20000 mg/l</li> <li>◆ Ideal for measurement of mixed liquor suspended solids (MLSS) in an aeration tank of activated sludge processes in sewage and industrial wastewater treatment facilities</li> </ul>

## Liquid Density Meter

DM8 Vibration Type Liquid Density Meter

<ul style="list-style-type: none"> <li>◆ Measures liquid density with high sensitivity and stability</li> <li>◆ Measuring range of 0.5 to 2.0 g/cm<sup>3</sup> unaffected by flow rate and viscosity</li> <li>◆ Detector is available in general-purpose, sanitary, and flameproof types</li> </ul>

## FT-Near Infrared Analyzers

InfraSpec NR800 Fourier Transform Near Infrared Analyzers

<ul style="list-style-type: none"> <li>◆ Continuous, multiple, and simultaneous measurement of component concentration and property values (density, polymerization degree, octane value, etc.) of various processes</li> <li>◆ Measurement of trace water content available</li> </ul>



At-line Model

On-line Model

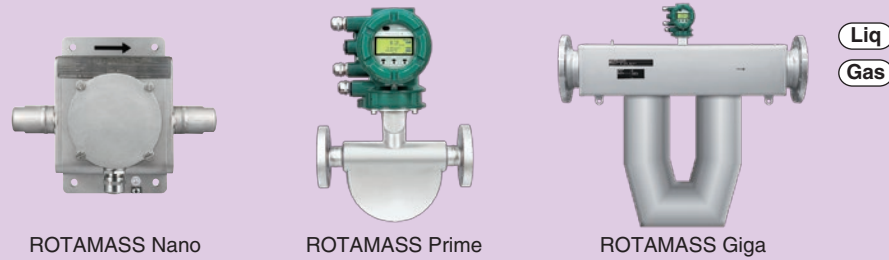
- ◆ Barcode reader provides easy operation for at-line and routine analyses
- ◆ Reduces operating and maintenance costs by consolidation of lab and process calibration models and on-site hands-on training



# Field Instruments

## Flowmeters

### ROTAMASS Total Insight Coriolis Mass Flowmeter



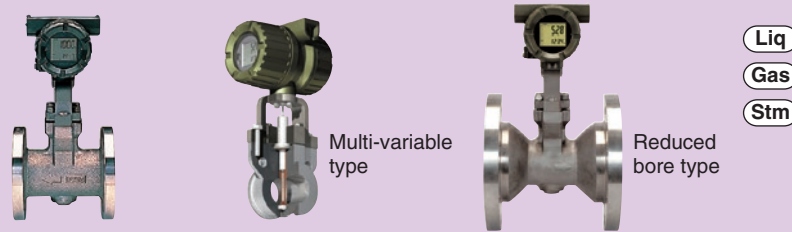
- ◆ Mass flow for nearly all flowing fluids.
  - ◆ Vibration-resistant due to counterbalanced double-tube measurement system.
  - ◆ Sensor design with low pressure loss.
  - ◆ High accuracy measurement, Mass flow: 0.1%, Density: 0.0005 g/cm<sup>3</sup>
  - ◆ Wide temperature range (–70°C to 350°C).
- Total Insight concept provides:
- ◆ Six dedicated product lines offering best-suited solutions.
  - ◆ Wizard for easy setup and configuration.
  - ◆ “Event Management” for pro-active operation.
  - ◆ Patented\* “Tube Health Check” for in-line meter verification. \*JP 4952820 B2
  - ◆ MicroSD card for easy data transfer.
  - ◆ Worldwide approvals.

### ADMAG Total Insight Series AXG and AXW Magnetic Flowmeter



- ◆ The ADMAG Total Insight series AXG and AXW adopt the “Total Insight” concept and totally support the product life cycle. The functions will increase customer’s benefits with reducing total cost of ownership.
- ◆ The AXG and AXW are a high-quality and highly reliable product developed based on years of experience and achievement by our proprietary dual frequency excitation method.
- ◆ The AXG is ideal for industrial process lines like oil&gas/chemical/pulp&paper/food&beverage/metal&mining applications, and the AXW is for general industrial process lines and water supply/sewage applications.
- ◆ The AXG and/or AXW provide four I/O signals, calorie calculation, data logging, NAMUR NE 107, built-in verification, application diagnostics, and data transfer by microSD card.

### digitalYEWFLO Vortex Flowmeter



- ◆ Spectral signal processing automatically optimizes the settings at all times, from immediately after power-on.
- ◆ Self-diagnostics, one step ahead of other flowmeters, enables predictive maintenance.
- ◆ Simultaneous analog and pulse signal outputs.
- ◆ High-temperature and cryogenic models also available.
- ◆ Built-in temperature sensor within the shedder bar offers the mass flow output or the temperature output.
- ◆ No installation of the temperature device is needed for the process.
- ◆ Durable meter design mostly meets the steam flow such as water hammer, high temperature process, etc.
- ◆ Reduced bore type measures lower flow-rate.

### ADMAG AXF Magnetic Flowmeter



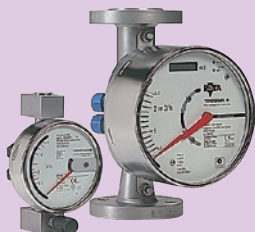
- ◆ “Dual Frequency Excitation Method” realizes the stable measurement of high concentration slurry fluid and low conductivity fluid.
- ◆ User-friendly functions; such as an electrode adhesion level diagnosis function, infra-red switches which can be used for setting parameters without opening the case cover.

### ADMAG AXR 2-wire Magnetic Flowmeter



- ◆ An extra AC power supply is not necessary. 2-wire loop powered performance allows direct connection to DCS I/O card possible, thus drastically reducing the initial cost and power consumption.
- ◆ AXR has SIL2 Safety Integrity Level (IEC 61508) certified. AXR is capable of SIL2 single use and SIL3 redundant use, as standard.

### ROTAMETER Variable Area Flowmeter



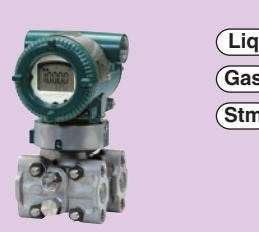
- ◆ Complete stainless steel design.
- ◆ Local indication and analog output.
- ◆ Various process connections and wetted materials.
- ◆ Options such as Exi-version, inductive alarms, pulse output, etc.

### EJA/EJX Series Differential Pressure Transmitters



- ◆ Combined with an orifice, measures liquid, gas, and steam flow rates.
- ◆ Available for direct mounting without three-valve manifold.
- ◆ Outstanding long-term stability slashes maintenance costs.

### EJX910A Multivariable Transmitter



- ◆ Fully compensated mass flow: all flow factors can be automatically and dynamically calculated to an optimal value.
- ◆ 1.0% mass flow rate accuracy over 1:10 flow range.
- ◆ Simultaneous dual output of 4 to 20 mA and pulse signals for total flow, flow rate, or alarm status.

Note: **Liq**, **Gas**, and **Stm** symbols indicate applicable process fluid types (liquid, gas, steam).

## Level Transmitters

### EJXC80A/EJAC80E Diaphragm Seal System (Direct Mount Seal)



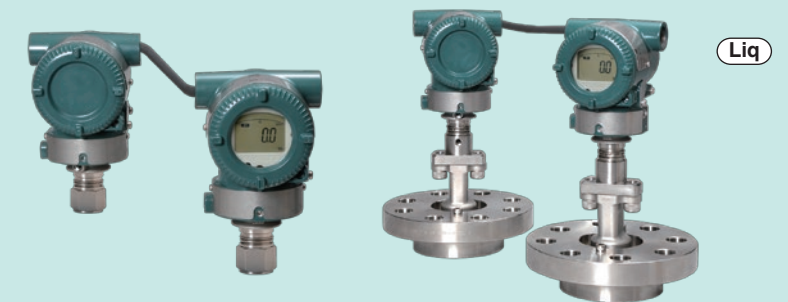
- ◆ Flange-mounting, compact differential pressure transmitter.
- ◆ Direct mounting to a tank.
- ◆ Small flange size model available.

### EJXC80A/EJAC80E Diaphragm Seal System (Remote Mount Seal)



- ◆ Ideal for measuring the levels and densities of corrosive and high-temperature fluids.
- ◆ Small flange size model available.

### EJXC40A Digital Remote Sensor



- ◆ Connecting two pressure sensors, master (high pressure side) and slave (low pressure side) in a remote location, with DRS dedicated communication cable to measure differential pressure.
- ◆ Suitable for level measurement of a tall tank. DRS cable length (maximum): 45 m
- ◆ Signal characterization for various tank types.

## Converter

### PK200 Current-to-Pneumatic Converter



- ◆ Electronic feedback system achieving high reliability and high performance.
- ◆ Energy-saving design achieve economy.
- ◆ Designed to be replacement-compatible with the former model 5502.
- ◆ Easy to operate.....one side access.

## Configuration Tool

### FieldMate Versatile Device Management Wizard



- ◆ FieldMate is a field work-oriented software program for configuring, daily patrol, troubleshooting, and managing a wide variety of field devices used in production plants and test laboratories.
- ◆ Multi-protocol access support FOUNDATION™ fieldbus H1, BRAIN, HART, ISA100 Wireless™, PROFIBUS, Modbus
- ◆ FieldMate Lite, a trial version of FieldMate, is available for download. <http://www.yokogawa.com/fieldmate/>

#### NOTICE

- Before operating the product, read the instruction manual thoroughly for proper and safe operation.
- If this product is for use with a system requiring safeguards that directly involve personnel safety, please contact the Yokogawa sales offices.

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