Field Products

Honeywell



Analytical Sensors and Measurement Solutions



HONEYWELL INNOVATION AND EXPERTISE

Analytical measurements are essential in virtually every industrial process. Precise and reliable measurement and control of pH, ORP, conductivity/resistivity, dissolved oxygen and hydrogen purity will benefit your operation in many ways:

- Consistent product quality
- Improved process efficiency
- Reduced equipment maintenance
- Plant and employee safety
- Compliance with environmental standards
- Protects expensive capital equipment

Precise and Reliable

From the primary sensors to the analytical instrument, Honeywell provides a broad portfolio of proven analytical measurement and control solutions to keep your operation running smoothly, efficiently and safely. Best of all, Honeywell's smart sensors and analytical instruments are available from authorized distributors throughout the world. Knowledgeable analytical professionals are there to assist you—when and where you need them.

Committed to Your Success

Don't compromise on your plant's performance and reliability—choose an analytical instrumentation supplier 100% committed to your success. At Honeywell, we've spent years developing products, services and maintenance solutions geared to helping you get the most out of process at the lowest cost. Since we understand the demands of modern plants, we deliver safer, more effective ways to optimize your processes.

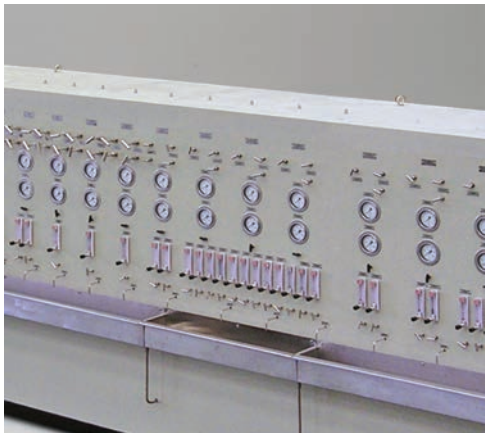
Typical Applications:

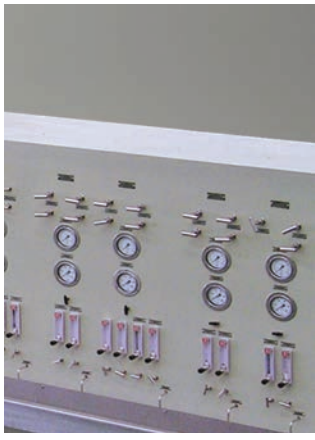
- Make-Up Water
- Boiler Water Quality
- Cooling Towers
- Influent and Effluent Monitoring
- Aeration Basin Blower Efficiency
- Neutralization
- Reagent Addition
- Product Quality Validation
- Hydrogen Cooled Generators

Industries:

- Power Generation
- Wastewater Treatment
- Water Treatment
- Chemical
- Refining
- Pulp & Paper
- Food & Beverage







Analyzers and Transmitters

UDA2182 Series Analyzers

The UDA2182 Series is a versatile, dual or single input analyzer that measures pH, ORP, contacting conductivity and dissolved oxygen. The “mix-and-match” input design offers the user flexibility for a wide range of applications. Its common form, fit and function to older Honeywell analyzers make it a quick and easy retrofit into existing panels and installations.

- Versatile Multiple Input Analyzer
- Mix and Match Process Measurements
- Entire Status at a Glance–Graphic LED Display
- Fast and Easy Commissioning–Even Wireless Configuration
- Remote Monitoring Using Web Pages
- Single or Dual Input for pH, ORP, Contacting Conductivity or Dissolved Oxygen
- Dual Input in any Measurement Combination
- PID Control Option
- Up to 3 Analog Outputs
- Up to 4 Alarm Relays
- Backlit Graphical LED Display
- Type 4 Case
- Infrared PC & Pocket PC Configuration
- FM/CSA Class 1, Div 2 Approval
- Event History Log
- Real Time Clock
- Auto Clean/Auto Calibration Functions
- Ethernet/Modbus Communications
- Eastern European Languages

Dissolved Oxygen Input

The dissolved oxygen input is from Honeywell’s unique equilibrium probe. It has these additional features:

- ppm or ppb Measurement
- Automatic or Manual Calibration
- Ambient Temperature and Atmospheric Pressure Compensation



pH Input

The pH input will accept a wide variety of sensors–non-glass Durafet®, HB high performance pH series and traditional glass Meredian® electrodes, ORP combination electrodes and the HPW700 high purity system. In addition to the basic unit the pH input has:

- Auto Buffer Calibration
- High Purity Water Solution Compensation
- 0.2 sec Update Rate for Fast Responding Durafet pH Electrodes

Conductivity Input

The conductivity input will accept signals from Honeywell’s standard selection of contacting conductivity cells. The conductivity unit also has:

- Temperature Compensation Curves
- Calculation of % Rejection/Passage and Difference of Two Cells
- Conversions to ppm, ppb or ppt Total Dissolved Solids (TDS)
- CO_2 Concentration Algorithm
- pH from Differential Conductivity

APT 2000/4000 Analyzers and Transmitters

Honeywell’s APT Series offers both an analyzer and a transmitter design. It has a large, easy to read display with a user interface that is easy to understand.

- FM Class I, Div 1 (I.S) Rating
- 120/240 Vac or 24 Vdc Loop Power
- pH and Conductivity (Contacting & Toroidal) models

DirectLine Transmitter

This unique, compact transmitter architecture is easy to install and use. It is a cost effective solution for light industrial applications

- FM Class I, Div 1 (I.S) Rating
- Plastic Housing
- pH, ORP, Contacting Conductivity and Dissolved Oxygen ppb and ppm Models

pH/ORP Mountings

pH is measured in a wide variety of process applications to ensure product quality, monitor effluent discharge and to control addition of chemicals for optimum chemical reaction. Applications include power, chemical process, wastewater and pure water measurements.







HPW7000: High Purity Measurement

The HPW7000 HiPurity Water pH Measurement System is an electrode mounting assembly designed specifically for the difficult pH measurement in high-purity water applications. The special flow chamber and electrode mounting simplifies installation and calibration while providing a pH measurement that is unsurpassed in accuracy and stability.

7773: Multipurpose Electrode

The 7773 allows mounting of separate measuring, reference and temperature sensors. It's capabilities encompass the industrial measurements of pH, ORP, in a flow or submersion configuration.

7774: Electrode Insertion/Removal

The 7774 insertion/removal assemblies are designed for use in processes under pressure because the electrode can be inserted or removed without interrupting the process.

7777: Combination Electrode

Honeywell's 7777/7777DVP series of electrode mountings enables users to interface Durafet® and Meredian II pH electrodes or ORP Meredian II electrodes by either submersing the electrode or mounting it into a 3/4" threaded connection.

7794DVP: Sanitary Electrode

This industry proven pH electrode, provides fast, accurate and dependable pH measurement in 3-A Sanitary applications.

DirectLine pH

DL2000 pH mountings are to be used with the DL421 pH DirectLine module. The durable Ryton body and glass pH sensor provide dependable pH measurement for light industrial applications. It is available for in-line tee and submersion mounting.

HB/HBD Series

HB/HBD546

HB/HBD546 is designed for threaded in-line or submerged operations. The HB/HBD546 is designed with 3/4" MNPT threaded nose for installation into process, sample line or automatic cleaning system.

HB/HBD547

HB/HBD547 is designed for use with specified ball valve assemblies. The electrode is available with 1" MNPT Wrench-tite, or 1-1/4" MNPT Hand-tite compression fittings.

HB/HBD551

HB/HBD551 is designed for use as a quick change sensor. 1" MNPT threaded adapter for installation into process, sample line or automatic cleaning system. The HB/HBD551 sensor comes with a nut-loc retainer for quick removal and replacement.

Honeywell conductivity technology helps measure, analyze and transmit valuable conductivity, resistivity and concentration information in simple and complex industrial processes with a complete line of conductivity cells and mountings.

Conductivity Mountings

4905: In-Line, Flow Chamber, or Immersion Mountings/General Purpose Conductivity

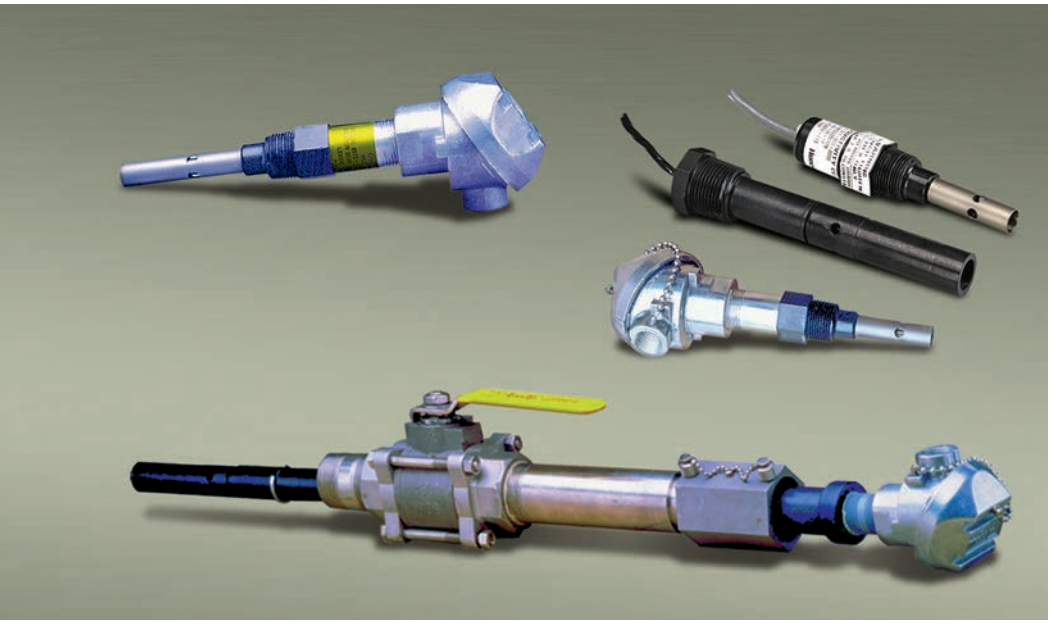
The 4905 Series cells are superior for general purpose applications. Constructed of PES for high corrosion resistance, 4905 series cells can be supplied with either nickel or platinum electrodes, and will provide continuous, reliable measurements at temperatures up to 140°C and pressures up to 250 psig.

4973: In-Line or Flow Chamber Mountings for Low Conductivity Measurements

The 4973 Series cells have a rugged configuration for reliable, continuous measurements of electrolytic conductivity in industrial water processes at temperatures up to 140°C at 250 psig.

DirectLine DL4000 Series

The DL4000 conductivity cells are to be used with the DL423 DirectLine Conductivity module. The durable epoxy body construction provides for rugged and dependable conductivity sensor for light industrial applications. The conductivity cells can be mounted in-line, in a pipe tee or submersed.





4909: Ball Valve Mounting for Insertion/Removal

The 4909 Cell Assemblies, available in 316 stainless steel or CPVC plastic, allow insertion or removal of the cell without interruption to the process. Two safety features, a restraining mechanism and an internal safety stop, provide protection to an operator for safe cell removal at pressures up to 50 psig with caution. The plastic removal device is equipped with a purge port to flush out any accumulated debris to aid in easy insertion or removal of the cell.

5000TC: Toroidal Conductivity Cells

The Honeywell 5000TC toroidal (electrodeless) conductivity sensors measure the conductivity of solutions from 0.2 to 2000 milliSiemens/cm. The sensors can also be used for monitoring chemical concentration as well as salinity. The corrosion and fouling-resistant probes are available with a variety of mounting assemblies to ensure compatibility for applications in the chemical, food and dairy, refinery, pulp and paper, metal finishing and waste water industries.

Honeywell is an industry proven leader for analytical products and solutions with unique technologies.

Innovations in analytical measurements lead to more reliable systems, lower total cost solutions and safer environments.

This results in process control that maximizes up-time and minimizes cost to add to your bottom line.

Unique Measurement Technology

Durafet® pH Electrodes

Honeywell pioneered innovative pH measurement with the first industrial, non-glass, ISFET (Ion Sensitive Field Effect Transistor) based pH sensor–the Durafet pH electrode.

- Waterproof Vario Pin Connector Options
- Rugged Non-glass Design Lowers Replacement Costs
- Long Term Stability Reduces Calibration Frequency
- 3-A Sanitary Design for On-line pH Measurement in Food & Dairy

Meredian® Glass pH Electrodes

Honeywell's traditional glass sensor electrodes offer time proven reliable pH measurement for selected applications. Designs include combination electrodes, as well as separate measuring and reference electrodes.

- High Purity Water Assembly for Accurate pH Measurement in Low Conductivity Sample
- Separate Measuring and Reference Electrodes Lowers Replacement Costs
- Platinum and Gold Electrodes for Accurate Measurement of ORP







Hydrogen Purity Concentration

The principles of thermal conductivity are used to determine the concentration of a specific gas in a binary gas mixture. This measurement is used to determine the concentration of the coolant and purge gases (H_2 and CO_2) used on start-up and operating cycles on hydrogen cooled turbine generators.

- Low Drift Reduces Need for Frequent Calibrations
- Rapid Response Provides Immediate Indication of Process Changes
- Time Proven, Reliable Measurement Ensures Safe Start-up and Operation
- On-line Measurement Helps Increase Efficiency and Save Operating Costs

DL5000 Dissolved Oxygen

Accurate and stable dissolved oxygen measurements can be made using Honeywell's unique equilibrium probe technology. This unique technology provides excellent performance in low parts per billion (ppb) as well as parts per million (ppm) applications.

- Unique Equilibrium Probe Technology
- No Replacement of Membrane, Electrolyte or Electrode
- Unaffected by Fouling
- Not Flow Sensitive

High Performance HB and HBD Series

Unique, rugged reference technology extends the lifetime in harsh process applications. This saves on maintenance and replacement costs. HBD Series combines the superior performance of the non-glass Durafet pH sensor with the unique reference design for the longest lifetime in the most demanding applications.

- Non-glass, Durafet Sensor Options
- Prevents Sensor Poisoning
- Prevent Internal Leaks and Plugging
- Allows Extreme Temperature and Pressure Tolerance
- Allows for Long Life in Low and High pH Applications

Product Range

Not all applications are the same and require different solutions based on process conditions and installation requirements. For pH and conductivity, Honeywell offers the right solution based on the particular application.

pH: For pH the applications and products can be segmented as illustrated below.

EASY Ambient Conditions; Neutral pH	MODERATE Elevated Temperature; Elevated Pressure; 3-11 pH	HARSH High Temperature; High Pressure; Very Acidic/Very Basic
DirectLine pH	Meredian	HBD Series
	Durafet II	HB Series
	Durafet III	

Conductivity: For conductivity the applications and products can be segmented as illustrated below.

EASY Ambient Conditions; Conductivities between 20 and 10,000 uS/cm	MODERATE Elevated Temperature; Elevated Pressure; High Purity Water Applications	HARSH High Temperature; High Pressure; "Dirty" Applications
DirectLine	4973	Torodial
	4905	
	4909/4908	

Product Application

Honeywell's analytical products portfolio consists of a wide range of measurement and product offerings. This results in a flexible selection of models to fit the application and installation with a cost effective solution.

	DirectLine	Analyzer	Transmitter	Sensor/Electrodes Mounting
pH	DL421	UDA2182, APT4000PH	APT2000PH	DL1000, DL2000, 7773, 7774, 7777, 7794DVP, 7777DVP, HB/HBD Series, HPW700
Conductivity	DL423	UDA2182, APT4000CC, APT4000TC	APT2000CC, APT2000TC	DL4000, 4973, 4905, 4909/4908, 5000TC
Dissolved Oxygen	DL424, DL425	UDA2182	–	DL5000
ORP	DL422	UDA2182	–	7773, 7774, 7777, HB Series
Hydrogen Purity	–	7866	–	7866

For More Information

To learn more about Honeywell's analytical products, contact your local Honeywell account manager or visit our web site at www.honeywellprocess.com.

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