

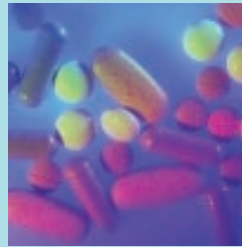


Honeywell

Industrial Measurement and Control

Smart Sensors and Analytical Instruments

Honeywell Solutions for Analytical Measurement and Control



EASY TO INSTALL . . .

EASY TO USE . . .

EASY TO MAINTAIN . . .

EASY TO OWN.



the
easy
choice™

Process Measurements Made Easy!

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

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

Honeywell offers depth of experience and a broad product portfolio in the demanding science of analytical measurements. 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. Our smart sensors and analytical instruments are available from authorized Honeywell distributors throughout the world.



Typical Applications:

- Wastewater and Pure Water Treatment
- pH Measurement in Food and Dairy Industries
- Corrosion Detection
- Dearator Efficiency
- Aeration, Effluent, Stream and Aquaculture Monitoring
- Industrial Drying
- Heat Treating Furnaces and Gas Generators
- Natural Gas Pipelines
- Turbine Monitoring
- Sterilization

Industries:

- Power Generation
- Water and Wastewater
- Chemical
- Pulp & Paper
- Refining
- Pharmaceutical and Biotech
- Industrial Heating
- Semiconductor
- Food & Dairy



Process measurements don't have to be complicated

The DirectLine® family of sensor modules provides an easy solution to simplify common process measurements. Utilizing Honeywell's patented sensor technology the DirectLine® architecture combines the sensors and transmitters into a single device.

EASY TO INSTALL Integral sensor/electronics reduces wiring, cable runs and panel cutouts

EASY TO USE Local display and keypad allows easy set-up, calibration and operation

EASY TO MAINTAIN

Plug-in sensors make replacements a snap!

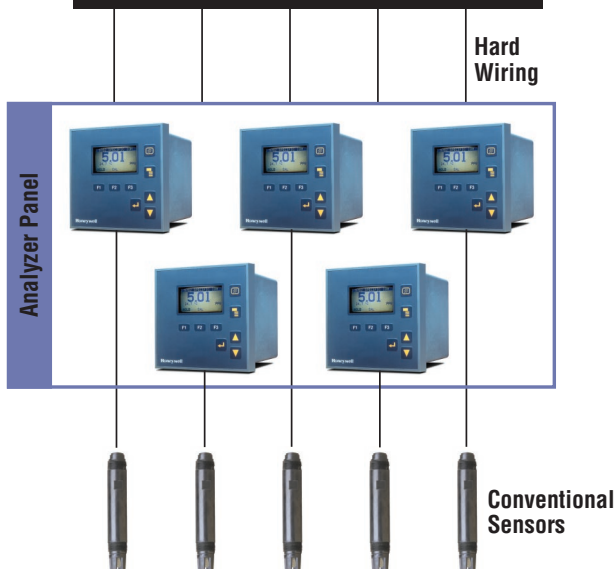


DirectLine® Sensor Module At a Glance

- **Measurement:** pH, ORP, Contacting Conductivity, Dissolved Oxygen
- **Mounting:** Integral to the sensor or remote mounted; pipe, wall, or DIN rail
- **Enclosure:** IP 66, Watertight sensor connection for reliability in submersion applications.
- **Display:** LCD 4-Digit, 7-Segment
- **Output:** One 4–20 mA
- **Power:** 16-42 Vdc Loop Powered
- **Approvals:** CE, UL, CSA, FM

YESTERDAY

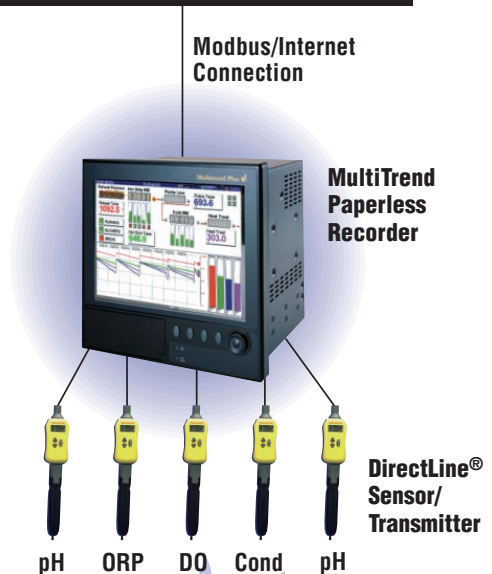
Plant-Wide Monitoring System



- Large Panel
- High Equipment Cost
- High Maintenance Cost
- High Installation Cost

TODAY

Plant-Wide Monitoring System



- Small Panel
- Lower Equipment Cost
- Simplified Maintenance
- Lower Installation/Wiring
- **Lower Total Cost**

Elimination of Dedicated Analyzers and Associated Panel Space Results in Lower Total Cost

Changing the game in pH, ORP, Conductivity, and Dissolved Oxygen measurement!

Unique Measurement Technology



pH - 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 process, wastewater, and pure water measurements.

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

- Exceptionally fast response for improved product quality
- Rugged non-glass design lowers replacement costs
- Long term stability reduces calibration frequency
- 3-A Sanitary design for on-line pH measurement in Food and Dairy

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



Conductivity - Honeywell's conductivity technology measures conductivity, resistivity, and concentration in applications ranging from ultrapure water to strong acids and bases. Contacting and toroidal cell designs provide excellent stability with minimal maintenance.

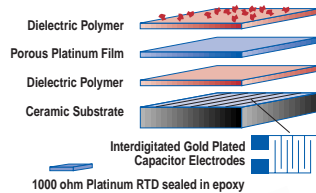
- Automatic upload of cell data reduces mistakes and speeds up instrument set-up
- Application specific algorithms for accurate measurement
- Rugged designs keep maintenance to a minimum



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.

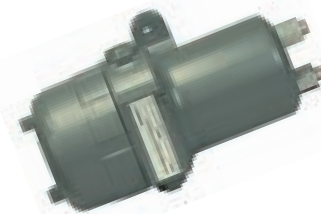
- Unique Equilibrium probe technology
- No replacement of membrane, electrolyte or electrode
- Unaffected by fouling
- Not flow sensitive

PATENTED MOISTURE SENSOR



Moisture - The unique, guarded-layer sensor technology at the heart of Honeywell's moisture measurement product line provides accurate, dependable on-line moisture measurement with minimal maintenance or re-calibration. The instruments are rugged and withstand the heat, pressure and contamination often encountered in industrial atmospheres.

- Work in-situ; does not require sampling system
- Simple to maintain
- NIST traceability



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 (H₂ and CO₂) used on the 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

Analyzers and Transmitters

Analyzers and transmitters provide local display and retransmission of the analytical sensor input. These instruments also provide the user interface for configuration and calibration.

9782 Series Analyzers

The 9782 Analyzer is easy to use and set-up. It has easy to follow menu driven displays that makes set-up and calibration a breeze. Its form, fit, and function make it a quick retrofit to existing panels and mountings.

- pH, ORP, Conductivity, and Specific Ion models
- 120/240 VAC power
- Up to 3 analog outputs
- Up to 4 alarm relays



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.

- pH, Conductivity (contacting and toroidal), and ORP models
- 120/240 Vac or 24 Vdc loop power
- FM Class I, Div 1 (I.S) rating



7020 Dissolved Oxygen Analyzer

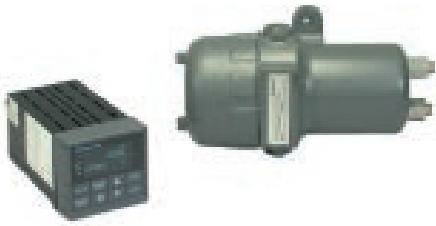
A full function analyzer/controller which when used with the DL5000 DO probe provides accurate DO measurements for applications in conventional water chemistry in power plants, water treatment in semi-conductor applications, and municipal or industrial wastewater.

- Automatic or manual calibration
- Ambient temperature and atmospheric pressure compensation
- Weatherproof case suitable for outdoor use



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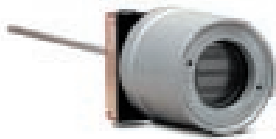
Analyzers and Transmitters



7866 Gas Analyzer

The 7866 gas analyzer consists of a sensing unit and a control unit plus an optional remote indicator and sampling panel. The control unit provides two output signals which can be sent to a remote device for monitoring or recording purposes. Optional Modbus communications available.

- Factory configured for triple range H₂ purity applications
- Long history of reliable sensor performance
- User friendly operator interface
- Two individually configured alarms



Dewpoint/Temperature Transmitters

Industrial moisture transmitters rugged enough to withstand temperature, pressure and contamination conditions typical of industrial environments.

- Rugged dual-element sensor
- Operates at temperatures up to 1000°F/538°C (with cooler)
- Operates at pressures up to 13,790 kPa (2000 psi)
- FM approval for hazardous areas



Industrial Humidity Transmitter

Humidity transmitter designed for use in industrial processes. Typical applications include hazardous, hostile industrial, chemical and pharmaceutical environments, environmental monitoring and food processing.

- Temperature compensated humidity measurement
- Explosion-proof option
- Single point field calibration
- Interchangeable sensor



Humidity Transmitters

High accuracy humidity transmitters targeted for OEM applications requiring %RH or %RH and temperature measurements.

- Temperature compensated %RH measurement
- Remote probe option, with user-specified cable lengths
- Single point field calibration
- NIST Traceable calibration available



Mountings

Name the application, Honeywell has the mounting solution! Analytical mountings provide the sensor interface to the process. Choose from a wide selection of mountings, each designed for specific installation and applications across a variety of industries.

pH Mountings



7773 Series Multipurpose pH and ORP Electrode Mountings



7777 Series In-Line or Submersion pH/ORP Electrode Mountings



7758 Series Pipeline Electrode Mountings For Industrial pH and ORP Measurements



7774 pH Series and ORP Electrode Insertion/Removal Assemblies



Model 7794 Sanitary Durafet II pH Mounting

Conductivity Mountings



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



4909 Ball Valve Mounting for Insertion/Removal



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



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



HPW7000 Hi-pHurity Water pH Measurement System

Accuracy and stability are combined with simplicity in this electrode mounting assembly for measuring pH in high purity water applications. A specially designed flow chamber provides optimal flow patterns and volume. The electrode cover and holder is keyed so that proper alignment is maintained during installation. An easy to remove clamp secures the cover and makes electrode removal for calibration or maintenance fast and easy. Electrode and cable shielding ensures a stable pH reading. The reference electrode is easy to refill and maintain. A calibration cup holder allows the user to calibrate right at the assembly and saves calibration time.

HPW7000 at a Glance:

- **Electrodes:** Separate glass measuring and flowing reference
- **Mounting:** Flow chamber with 1/4" inlet and outlet compression fittings
- **Pressure and Temperature Rating:** Up to 1034 kPa (150 psig) @ 100°C (212°F)
- **Materials of Construction:** Flow Chamber: 304 SS
Electrodes: Glass body, EPM o-rings, ceramic reference junction

Analytical Product Overview

	Directline	Analyzer	Transmitter	Sensor/Electrode Mountings
pH	DL421	APT4000PH, 9782P	APT2000	DL1000, DL2000 7777, 7774, 7773, 7758, 7794D
Conductivity	DL423	APT4000CC, APT4000TC, 9782C	APT2000CC, APT2000TC	DL4000, 4973, 4905, 4909/4908
Dissolved Oxygen	DL424, DL425	7020		DL5000
ORP	DL422	9782P		DL3000, 7777, 7774, 7773, 7758
Moisture - %RH			H4111, H4112, H4114, H4129, H4139	
Moisture - Dew Point			H4112, H4114	
Hydrogen Purity		7866		

1-800-784-3011 Sales and Application Support

Our team of field sales engineers, local stocking representatives and technical support specialists are available to serve you in 95 countries on six continents. We back all of our products with a comprehensive warranty and a Technical Assistance Center staffed with engineers and technicians with solid product knowledge.

Teaming with our direct sales force, Honeywell's Authorized Representatives provide total solutions for your control needs. With offices located throughout the country, our extensive distribution network provides responsive, local service and support before, during and after the sale. Honeywell reps provide many value-added services including:

- Local inventory with quick delivery
- Application and technical support
- On-site training
- 24-hour emergency service

To find the Honeywell Authorized Representative nearest you, visit our on-line Rep Locator at: <http://locator.micro.honeywell.com>

Honeywell Industrial Measurement and Control



Honeywell Industrial Measurement and Control offers a complete portfolio of products and solutions for process and machine control applications, including controllers, recorders, transmitters, actuators, smart sensors, and analytical instruments. To learn more about these offerings and how they can help your organization achieve breakthrough results, contact your local Honeywell representative or contact us at the following telephone numbers:

U.S.: 1-800-784-3011

France: 33 1 60 19 80 75

Canada: 1-800-461-0013

Italy: 39 02 9214 6503

UK: 44 1698 481730

Spain: 34 91313.61.00

Germany: 49 69 8064-336

Latin America: 1-305-805-8188

Asia/Pacific: 65 355 2828

For other locations, visit our website: <http://www.honeywell.com/imc>

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local Honeywell sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective.

The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability or fitness for a particular purpose.

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