



Field Process
Measurement and Control

Analytical Instruments

Multiple Input Analyzer

Greater value and enhanced performance

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 and 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

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)
- CO₂ Concentration Algorithm
- pH from Differential Conductivity

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

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pH/ORP

Improved accuracy to optimize your process

A range of analyzers and transmitters for use with Honeywell glass and non-glass sensors and mountings to measure pH and ORP. Included in this offering is the Durafet pH electrode, the only industrial, solid state pH electrode on the market. For sanitary applications in the food and dairy industries, the

Sanitary Durafet is authorized to use the 3A symbol. For pure water applications, the HPW7000 Hi-pHurity pH measurement system guarantees a 0.1 pH accuracy in water samples with conductivity less than 10 uS. All the above mentioned measurements can be used in process, wastewater and pure water applications.



Instruments	UDA2182 Universal Dual Analyzer	DirectLine® Model DL421/422	APT 2000/4000pH Transmitter/Analyzer
Measurement	pH/ORP	pH/ORP	pH/ORP
Case (HxWxD)	Plastic Enclosure Made of GE Valox® 357 CSA Type 4X (NEMA 4X)	Plastic Polysulfone Enclosure, NEMA4X, 123 x 48 x 46 mm (4.84 x 1.89 1.81 in)	Plastic Enclosure Made of PBT NEMA4X, IP65 rating
Display	LCD Dot Matrix, 128 x 64 dpi	LCD 4-digit, 7-segment	7-segment LCD Display
Display Accuracy	0.05% of Reading	pH: ±0.02, Temp: ±1.0 (C or F)	pH: ±0.02 pH, Temp: ±0.1°C (±0.1°F)
Control capabilities/advanced features	PID Control, Ethernet/Modbus Communications, Pocket PC and Infrared Configuration, Auto-buffer Calibration, High Purity Water Solution Compensation, 0.2 sec Update Rate, E. European Languages	Integral Electronics/Sensor Design, One or Two Point Calibration, Auto Buffer Recognition	Electronics and Sensor Diagnostics, Auto Buffer Recognition, Hart communication for Transmitter
Operating Conditions	0° to 60°C (32° to 140°F)	-20° to 85°C (-4° to 185°F)	-20° to 55°C (-4° to 131°F)
Operating Voltage	90-264 Vac 47-63 Hz	16-42 Vdc	2000: 14-40 Vdc 4000: 20-253 Vdc
Analog Outputs	Up to Three 4 to 20mA	One 4 to 20 mA	2000: One 4 to 20 mA 4000: Two 4 to 20 mA (One Dedicated to Temp)
Relays	Up to 4 Relays	N/A	2000: N/A 4000: Hi/Lo Alarm Relays
Mountings	Pipe, Wall, or Panel	Integral: No Electronics Mounting Needed. Remote: Pipe, Wall or DIN Rail	Pipe, Wall, or Panel
Approvals	CE; FM Class 1, Div. 2; UL/CSA General Purpose	CE for Industrial Applications, UL-General Purpose; CSA General Purpose FM Class I, Div 1, Groups A-D (IS); FM Class I, Div 2, Groups A-D (N.I. Field Wiring)	CE; FM Class 1, Div. 2 (APT4000); FM Class I, Div. 1 IS (APT2000) and Cenelec

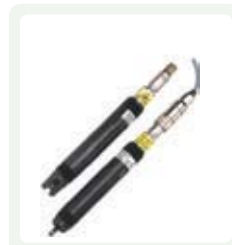
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pH/ORP

Improved accuracy to optimize your process



Sensors	Durafet® Solid State pH Electrode	Meredian II Glass pH Electrode	Oxidation Reduction Potential (ORP) Electrode	HPW7000 Hi-pHurity pH Measurement System
Measurement Range	0-14 pH	0-14 pH	1999 to 1999 mV	4-10 pH
Temperature Range	-10° to 130°C (14° to 266°F)	0° to 110°C (32° to 230°F)	-5° to 110°C (23° to 230°F)	10° to 80°C (40° to 176°F)
Pressure & Temp Ratings	Depends on sensor	Depends on sensor	Depends on sensor	1 to -10 in. WC (0.249 to -2.49 kPa) 10° to 80°C (40° to 176°F)
Materials of Construction	Ryton body, solid state electrode, viton and EPDM seals	Ryton body, glass electrode, EPDM seals	Ryton body, gold or platinum electrode, EPDM seals	316L SS flow chamber, glass electrodes, 316 SS temp sensor
Special Features	Response 10X faster than glass, replaceable reference junction, VarioPin waterproof connector option	Long lasting combination reference electrode, integral cable	Quick Disconnect cable options	0.1 pH accuracy in process with conductivity <10 uS/cm
Mountings	See mounting types	See mounting types	See mounting types	Panel mounting option



Mountings	7773 Mounting	7774 Mounting	7777 Mounting	7794 Mounting	HB Series
Measurement Range	0-14 pH ±1600 mV ORP	0-14 pH ±1600 mV ORP	0-14 pH ±1600 mV ORP	0-14 pH	0-14 pH ±1600 mV ORP
Temperature Range	Depends on sensor	Depends on sensor	Depends on sensor	-10° to 110°C (14° to 230°F)	Depends on sensor
Pressure and Temperature Ratings	Immersion/Polypropylene: 689 kPa @ 60°C (100 psig @ 140°F) 316 SS: 689 kPa @ 80°C (100 psig @ 176°F) Flow-through/Polypropylene: 689 kPa @ 60°C (100 psig @ 140°F) 316 SS: 515 kPa @ 80°C (150 psig @ 176°F)	316 SS: Determined by electrode CPVC: 689 kPa @ 50°C (100 psig @ 122°F)	Up to 689 kPa @ 50°C (100 psig @ 122°F)	Up to 689 kPa @ 100°C (100 psig @ 212°F)	CPVC and Polypropylene: 689 kPa @ 100°C (100 psig @ 212°F) Kynar: 1034 kPa @ 140°C (150 psig @ 284°F)
Materials of Construction	Polypropylene, Ryton, or 316 SS	Ball valve, mounting nipple & extension tube, 316 SS or CPVC o-rings: EPDM & Viton	Durafet and glass electrode bodies: Ryton	Body: Polysulfone	Body: CPVC, Polypropylene, Kynar
Special Features	Allows separate measuring and reference electrodes in one mounting	Insertion/removal under pressure without interrupting process		Sanitary 3-A approval for food & dairy applications	Rugged reference design minimizes fouling in harsh environments
Mountings	Immersion or flow-through	1 1/4 in. NPT (316 SS) or 1 1/2 in. NPT (CPVC) pipe nipple through ball valve	Immersion or in-line tee (3/4 in. NPT fitting)	1 1/2, 2 or 3 inch tri-clamp flange mounting	Model 546: In-line or submersion Model 547: Ball valve Model 551: Nut-loc

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Conductivity

Proven technology for reliable measurements

A range of analyzers and transmitters for use with Honeywell contacting and toroidal conductivity cells and mountings to measure conductivity, resistivity, salinity and chemical

concentrations. These measurements can be made in many industrial process and pure water applications.



Instruments	UDA2182 Universal Dual Analyzer	DirectLine Model DL423	APT 2000/4000CC Contacting Conductivity	APT 2000/4000TC Toroidal Conductivity
Case (HxWxD)	Plastic enclosure made of GE Valox® 357 CSA Type 4X (NEMA 4X)	Plastic polysulfone enclosure, IP66, 123 x 48 x 46 mm (4.84 x 1.89 x 1.81 in)	Plastic enclosure made of PBT NEMA4X, IP65 rating	Plastic enclosure made of PBT NEMA4X, IP65 rating
Display	LCD dot matrix, 128 x 64 dpi	LCD 4-digit, 7-segment	7-segment LCD display	7-segment LCD display
Display Accuracy	0.05% of reading Temperature: 0.1% from -10° to 100°C ±1.0°C from 101° to 140°C	Conductivity/resistivity: greater of ±2 counts or ±0.5% of reading. Concentration: ±0.5% of reading. Temperature: ±0.1°C from -10° to 99°C, ±1°C from 100° to 140°C	Conductivity: 1% of measured value or ±(0.4 microS/cm* cell constant)	Conductivity: 1% of measured value ±(0.2 microS/cm ±1 Significant digit)
Control Capabilities /Advanced Features	PID control; Pocket PC and infrared configuration, temp. compensation curves; CO ₂ concentration; ppm, ppb or TDS conversions, Ethernet/Modbus communications, E. European languages	Integral electronics/sensor design; trim value or 1 point solution calibration	Measures conductivity, resistivity, or salinity; electronics and sensor diagnostics, Hart communication for transmitter	Measures conductivity, or chemical concentration; electronics and sensor diagnostics, Hart communication option
Operating Conditions	0° to 60°C (32° to 140°F)	-20° to 85°C (-4° to 185°F)	-20° to 55°C (-4° to 131°F)	-20° to 55°C (-4° to 13°F)
Operating Voltage	90-264 Vac 47-63 Hz	16-42 Vdc	2000: 14-42 Vdc 4000: 20-253 V, AC or DC	2000: 14-42 Vdc 4000: 20-253 V, AC or DC
Analog Outputs	Up to three 4 to 20mA	One 4 to 20 mA	2000: One 4 to 20 mA; 4000: Two 4 to 20 mA (one dedicated to temp)	One 4 to 20 mA
Relays	Up to 4 relays	N/A	2000: N/A; 4000: Hi/Lo alarm relays	2000: N/A; 4000: Hi/Lo alarm relays
Mountings	Pipe, wall, or panel	Remote: pipe, wall or DIN rail	Pipe, wall or panel	Pipe, wall or panel
Approvals	CE; FM Class 1, Div. 2; UL/CSA general purpose	CE for industrial applications; UL/CSA general purpose FM	CE; FM Class 1, Div. 2 (APT4000); FM Class 1, Div. 1 IS (APT2000); CENELEC	CE; FM Class 1, Div. 2 (APT4000)



Sensors	4973 Contacting Conductivity Cells	4905 Contacting Conductivity Cells	4909 Contacting Conductivity Cells	5000TC Toroidal Conductivity Cells
Measurement Range	0.01, 0.1, 1.0, 10.0 cell constants, 0.055µS/cm to 250 mS/cm	0.01, 0.1, 10.0, 50 cell constants, 0.055µS/cm to 1S/cm	0.01, 0.1, 10.0, 50 cell constants, 0.055µS/cm to 1S/cm	0.2 to 200 milliSiemens/cm
Pressure and Temperature	1724 kPa @ 140°C (250 psig @ 284°F)	1034 kPa @ 130°C (150 psig @ 266°F)	SS: 3.45 bar @ 140°C (50psi @ 284°F); CPVC: 2.07 bar @ 140°C (30psi @ 284°F)	Polypropylene: 6.9 bar @ 100°C (100psi @ 212°F); PVDF: 6.9 bar @ 120°C (100psi @ 248°F); PEEK: 13.8 bar @ 150°C (200psi @ 302°F); PFA Teflon: 13.8 bar @ 150°C (200psi @ 302°F)
Materials of Construction	Titanium or graphite	Nickel or platinum	Nickel or platinum	Polypropylene, PVDF, PEEK, PFA Teflon
Mountings	3/4 inch NPT threaded fitting	1 inch NPT threaded fitting	Insertion/Removal ball valve assembly in CPVC or SS allows insertion/removal of cell without stopping process	Immersion, union adapter, sanitary 2 inch flange or insertion/removal

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Dissolved Oxygen

Patented techniques for DO monitoring



Instruments	UDA2182 Universal Dual Analyzer	DL424 ppm	DL425 ppb
Case	Plastic enclosure made of GE Valox® 357 CSA Type 4X (NEMA 4X)	Plastic polysulfone enclosure, IP66, 123 x 48 x 46 mm (4.84 x 1.89 x 1.81 in)	Plastic polysulfone enclosure, IP66, 123 x 48 x 46 mm (4.84 x 1.89 x 1.81 in)
Display	LCD dot matrix, 128 x 64 dpi	LCD 4-digit, 7 segment	LCD 4-digit, 7 segment
Display Accuracy	D.O.: 0.5% of reading Temp.: ±1.0°C	0.01 ppm	0.1 ppb in 0-20 ppb range 1.0 ppb in 0-200 ppb range
Operating Conditions	0° to 60°C (32° to 140°F)	-20° to 60°C (-4° to 185°F)	-20° to 60°C (-4° to 185°F)
Control Capabilities/Advanced Features	PID control; Pocket PC and infrared configuration; ppb or ppm measurement, automatic or manual calibration; temperature and pressure compensation, Ethernet/Modbus communications, E. European languages	Integral electronics/sensor design	Integral electronics/sensor design
Operating Voltage	90-264 Vac; 47-63 Hz	16-42 Vdc	16-42 Vdc
Analog Outputs	Up to three 4 to 20mA	One (1) 4 to 20 ma	One (1) 4 to 20 ma
Relays	Up to 4 relays	N/A	N/A
Mountings	Pipe, wall, or panel	Integral, no electronics mounting needed Remote: pipe, wall or DIN rail	Integral, no electronics mounting needed Remote: pipe, wall or DIN rail
Approvals	CE; FM Class 1, Div. 2; UL/CSA General Purpose	UL and CSA general purpose	UL and CSA general purpose



Sensor	DL5000 Equilibrium Probe for ppm & ppb application
Measurement Range	0-20,000 ppb or 0-20 ppm
Temperature Range	2° to 60°C (35.6° to 140°F)
Pressure and Temperature Ratings	316SS: 50 psi (345 kPa) CPVC: 30 psi (207 kPa)
Materials of Construction	316SS or CPVC housing
Special Features	Equilibrium probe design requires no internal probe maintenance
Mountings	Immersion in tank, in-line or sample flow chamber
Dimensions (OD)	219 x 34 mm (8.62 x 1.32 in), 1 inch NPT pipe size, 20 feet waterproof cable
Response Time	85% in 60 seconds

These analyzers/probe systems determine the levels of dissolved oxygen in water. The patented equilibrium dissolved oxygen probe design is unaffected by inert fouling or changes in flow conditions. The system's analyzer/controller measures either ppb DO levels in power plant and semiconductor applications for corrosion detection or deaerator efficiency or ppm DO levels in wastewater, environmental and process applications for control and compliance.