

## UDA2182

# Universal Dual Analyzer

# Specification

### Overview

The UDA2182 Universal Dual Analyzer is a new, economical, dual input analyzer addition to Honeywell's Smart Sensor product family.

The analyzer can accept single or dual inputs from Honeywell pH, ORP, contacting conductivity and dissolved oxygen sensors. For dual units the inputs can be ordered in any combination.

The UDA2182 monitors and controls Analytical process variables in applications such as:

- Power water quality control
- Wastewater influent & effluent
- Pure water preparation
- Food and Dairy
- Neutralization

### Features

- Single or Dual input measurement
- Dual input in any combination of pH, ORP, contacting conductivity, or dissolved oxygen
- Versatile, backlit graphical display
- Infrared PC & Pocket PC configuration
- Optional input from Honeywell remote digital preamplifiers and Durafet Cap Adapters
- Isolated inputs and outputs
- CSA Type 4X (NEMA 4) enclosure
- Multilanguage prompts
- Two analog outputs standard plus one additional optional
- Two electromechanical relays standard plus two additional optional
- Easy access through hinged front door
- Full DIN Size
- Panel, wall or pipe mounting is available
- Easily Field Up-gradable

The UDA2182 is a functional replacement for older Models 7082 and 9782 Analyzers. It will fit into the same panel cutout and has many of the same features and benefits of the former analyzers. Therefore it is compatible with existing pH and conductivity applications and installations.



Figure 1 - Front of UDA2182 Analyzer

The UDA2182 is UL Listed and CSA Certified. It is also CE Compliant.

The unique UDA2182 display is a graphical backlit LED. Two PV values along with their Unit of Measure can be displayed simultaneously. The process temperature of both PVs is also displayed. The versatile display will also display the analog output FS percent and the state of the relays.

Tagging and time or date information as well as status messages are available on the display and are easily configured by the user.

Configuration can be done with a PC through communication or with a Pocket PC, using the embedded infrared communication port. No need to get access to the back of the controller to download or upload a brand new configuration!

### Analytical Inputs

The UDA2182 is a "Mix & Match" design. Analytical measurements of pH, conductivity and dissolved oxygen (ppm or ppb) can all be done in one analyzer. The unit can be used as a single input or dual input instrument – the user decides what measurements are included.

The input boards are easily replaced and the addition of additional relays or an analog output is done with a single board. The "Mix –n– Match" design reduces inventory and increases flexibility. A user can purchase a basic unit and then add input and output boards as needed. The board changes are fast and easy with front, hinged access to the analyzer.

The wiring is easily accessible through the front and the boards can be pulled out to facilitate the wiring of sensor inputs.

Inputs are isolated so grounding problems associated with sensor input signals are minimized.

## Outputs and Control

The following output types are available:

- Current Outputs (4-20 or 0-20 ma)
- Electromechanical Relays (5 amps)

The outputs are isolated and can be field allocated to the input PV, temperature, or computed value (conductivity)

**Control Algorithms** – Depending on the output algorithms specified, the controller can be configured for the following control algorithms:

- On-Off
- Current Adjusting Type (CAT)
- Pulse Frequency Type (PFT)
- Duration Adjusting Type (DAT)
- PID

Each control loop has as standard an auto-tuning feature using Honeywell's performance proven Accutune III tuning algorithm. A selectable "Fuzzy Logic" algorithm is also provided for each loop to suppress unwanted process setpoint overshoot.

## Alarms

Two (or four) electromechanical alarm relays are field selectable for activating external equipment when preset alarm setpoints are reached based on the PV. Each alarm setpoint can be either a high or low alarm. The relays can also be assigned to temperature or diagnostics. The alarm hysteresis is configurable from 0 to 100% of range.

## Operator Interface

**Display** – The UDA2182 has a versatile backlit, graphical LED display that is easy to read, even in the most difficult installations.

Multi-language prompts guide the operator step-by-step through the configuration process assuring quick and accurate entry of all configurable parameters. Five languages are available via configuration: English, French, German, Spanish and Italian.

**Dedicated Keys**—Provide direct access to Setup and Calibration to simplify and speed operation.

## Miscellaneous

**Moisture Protection** – CSA Type 4X (NEMA 4X) rating for front and case permits use in applications where it may be subjected to moisture, dust, or hose-down conditions.

**CE Mark** – Conformity with 73/23/EEC, Low Voltage Directive and 89/336/EEC, the EMC Directive as a standard feature.

**Approval Body Options** – General Purpose CSA certification and UL listing and FM Class I, Div. 2 is standard.

**Data Security** – Keyboard security protects configuration and calibration data, accessed by a configurable 4-digit code. Nonvolatile EEPROM memory assures data integrity during loss of power.

## Miscellaneous (cont'd)

**Diagnostic/Failsafe Outputs** – Continuous diagnostic routines detect failure modes, trigger a failsafe output value and identify the failure to minimize troubleshooting time.

**High Noise Immunity** –The controller is designed to provide reliable, error-free performance in industrial environments that often affect highly noise-sensitive digital equipment.

**Quality/Support** – The UDA2182 is covered by an 18-month warranty and backed up by a toll-free phone number for technical assistance (US Only).

**Auto Buffer Calibration** – for pH measurement the unit can be set up to recognize NIST, US, and Euro buffers and automatically select the standardize and slope values at the calibration temperature

**Solution Temperature Compensation** – For high purity water measurement the user can select pre-set compensations or configure custom values.

**USP26 Alarm Capabilities** – Relays can be configured to alarm on conductivity values as determined by the USP26 Standards

**Computed Variables** – For two-cell conductivity measurements, computed values of %Rejection/Passage, Difference, or Ratio can be displayed and assigned to the outputs or alarms.

**Dissolved Oxygen** –Auto-ranging of display and outputs with relays to indicate range, specialized probe bias diagnostics.

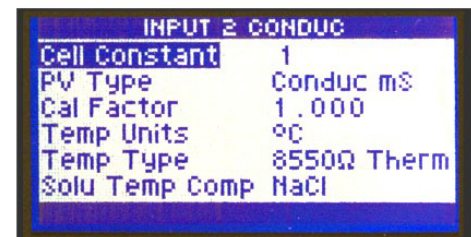
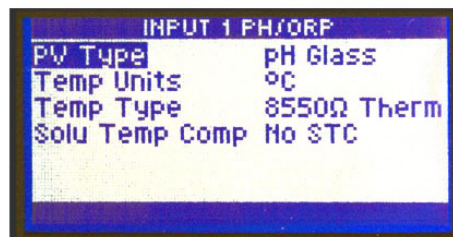
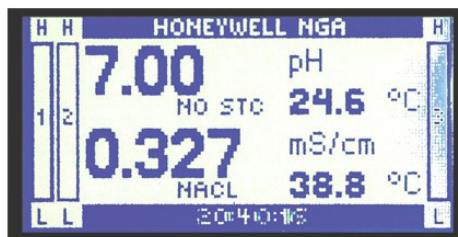
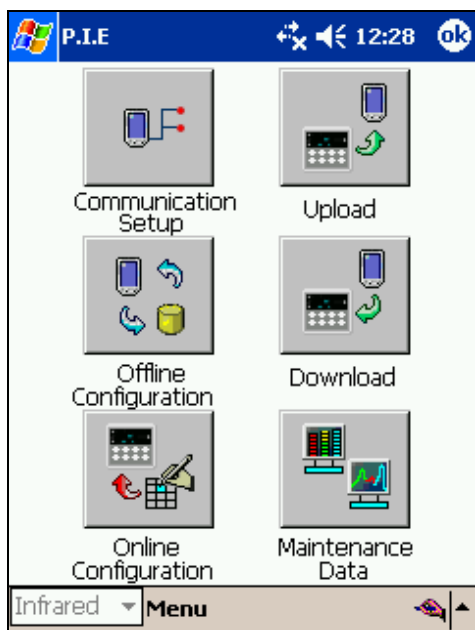


Figure 2 – UDA2182 Displays

## PC & Pocket PC Software

### Features

- Create configurations with intuitive software program running on a Pocket PC, a Desktop or a laptop computer.
- Create/edit configurations live, just connect software to analyzer via comm port.
- Create/edit configurations offline and download to analyzer later via comm. port.
- Infrared port available on every UDA2182
- This software is available in English, Spanish, Italian, German and French.



Screen capture of the configuration software running on a Pocket PC

### Infrared Communications

The infrared connection provides a non-intrusive wireless connection with the instrument and maintains NEMA4X integrity.

No need to get access to the back of the analyzer to communicate with the instrument, no need to take your screw driver to wire the communication cable, no wiring mistake possible! You can now duplicate an instrument's configuration, upload or download a new configuration in a matter of seconds, just by pointing your Pocket PC in the direction of the instrument.

**Aim & Upload!** It takes less than 2 seconds to upload a configuration from an instrument! You can then save the configuration file onto your PC or pocket PC for review, modification or archiving.

Furthermore, this software also gives you important maintenance information on the analyzer: instantly, get information on the current operating parameters, digital inputs and alarm status, identify internal or analog input problems.

**Question:** What if I have several analyzers on the same panel? How can I be sure I am communicating with the correct one?

**Answer:** The Infrared port is normally "off". You activate the infrared port on a particular analyzer by pressing any key. You can now communicate with the analyzer. If no communications are received for 2 minutes, the IR port will be shut down again.



*Get More Value and Performance From The UDA2182 ...*

*... The Most Versatile Multiple-Input Analyzer*



UDA2182 Dual Input Analyzer	
Control Loop/Outputs (Optional)	Control Loops: 2 standard (one for each PV); current, pulse frequency, or time proportional Control Loop Types: PID, Duplex, On/Off Auto-tuning: Accutune II, fuzzy logic overshoot suppression, applicable to both control loops
Standard Alarm/Control Relays	Two SPDT (Form "C") Relays Resistive Load Rating: 4A, 120/240 Vac
Optional Additional Alarm/Control Relays	Two SPDT (Form "C") Relays Resistive Load Rating: 4A, 120/240 Vac
Alarm/Control Settings	Alarm/on-off control delay: 0-100 seconds. Alarm/on-off control deadbands: individually set, from 1 count to full scale for pH, ORP, and temperature. On/off cycle period: 0 to 1000 seconds. On/off percent "on" time: 0 to 100%, 1% resolution. Setpoint and proportional band limit ranges: $\pm 19.99$ pH, $\pm 1999$ mV, -10 to 130°C, 1 count resolution. DAT cycle period: 1 to 1999 seconds. PFT maximum frequency: 1 to 200 pulses/minute. PFT pulse width: 50 ms, compatible with electronic pulse-type metering pumps.
Remote Preamplifier Input Option	Optional input card to accept input signal from Honeywell digital preamplifiers: Meridian II – 31075707 and 31022283 Durafet – 31079288 and Cap Adapter cables
pH Temperature Compensation	Conventional compensation for changing electrode output (Nernst response), plus selectable solution temperature compensation for high-purity water.
Auto Buffer Recognition (pH)	User Selectable Available Buffer Series: NIST, US, and Euro
Conductivity Compensations	NaCl, HCl, H <sub>2</sub> SO <sub>4</sub> , PO <sub>4</sub> , NaOH, NH <sub>3</sub> , Morpholine, Pure Water, Custom (User Selectable)
Dissolved Oxygen Measurement	Max flowrate (probe): 950 ml/min with flow chamber; no dependence on stirring or flowrate Atmospheric pressure: 500-800 mm Hg with internal sensor, for calibration Calibration with either Air or Sample
Power Requirements	90 -264 Vac, 47-63 Hz, 15 VA . Memory retained by E <sup>2</sup> PROM when power is off.
Wireless Interface	Type: Infrared (IR) Length of Link: 0 –1 M, 0 –15° Offset Baud Rate: 9600 Data Format: Modbus Protocol
Safety Compliance	UL/CSA General Purpose FM Approval for Class I, Div 2.
CE Compliance	CE Conformity (Europe): CE Mark on all models signifies compliance to EMC Directive 84/336/EEC and LVD Directive 73/23/EEC. EMC Classification: Group 1, Class A, ISM Equipment Method of Assessment: Technical File; EN61326, EN61010-1 Declaration of Conformity: 51453667
Installation Rating	Installation Category (Overvoltage Category): Category II Pollution Degree 2 Altitude: 2000 m
Case Dimensions	156 mm X 156 mm X 150 mm (6.14" X 6.14" X 5.91") Panel cutout: 138.5 mm X 138.5 mm (5.45" X 5.45") Panel thickness: 1.52 mm (0.06") min, 9.5 mm (0.38") max
Enclosure rating	CSA Type 4X (NEMA 4X)
Weight	Approx 3 lbs (6.6kg)
Mounting	Panel mounting-hardware supplied. Optional Wall and 1" to 2" pipe mounting. Select option appropriate in Model Number.

## Dimensions

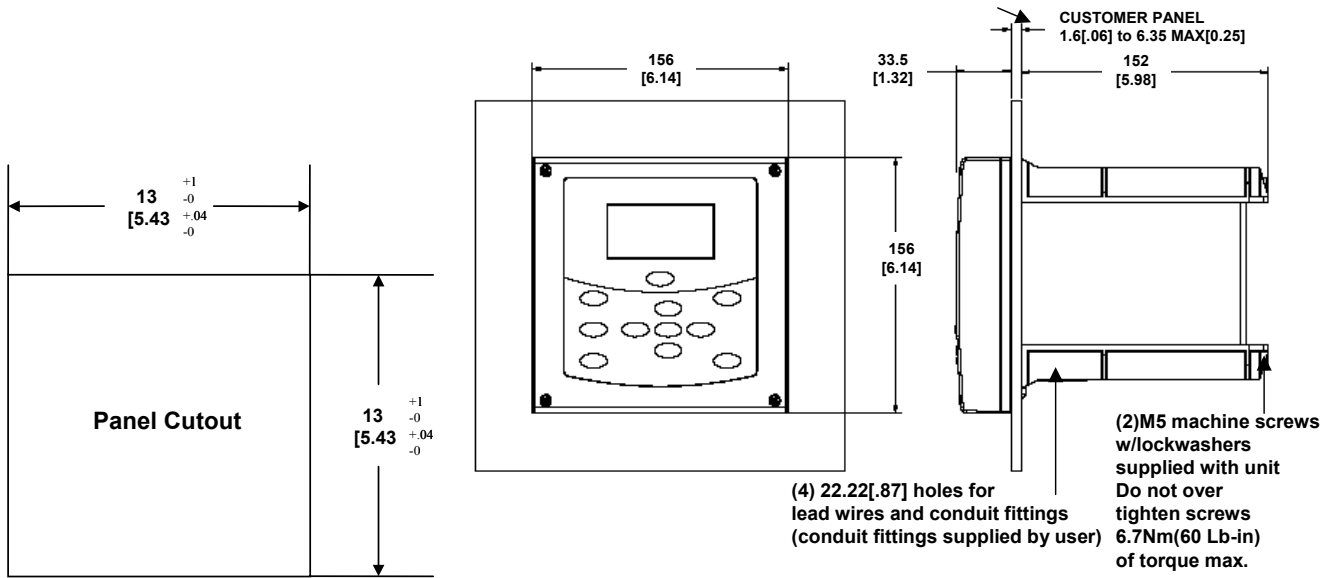


Figure 3—Cutout and Panel Mount Dimensions

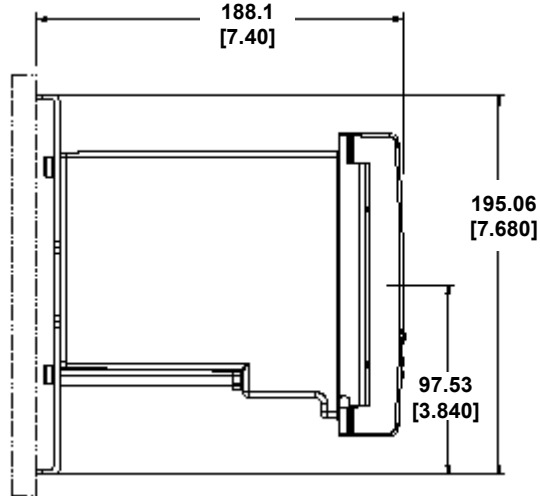


Figure 4 – Wall/Pipe Mounting Dimensions

## Ordering Information

# Dual Input Analytical Analyzer      Model Selection Guide Model UDA2182

Model Selection Guide  
51-52-16-85    Issue 3

Honeywell Proprietary

### Instructions

- Select the desired key number. The arrow to the right marks the selection available.
  - Make the desired selections from Table I - V using the column below the proper arrow.
- A dot (•) denotes availability. No (•) dot denotes not available.

Key Number    I    II    III    IV    V  
   -    -    -    -    -   

### Basic Unit Includes:

- Two 4-20 mA outputs
- Two alarm relays
- Panel Mounting Hardware
- Instructions on CD (English)
- Infrared Communications Port

Key Number - Dual Input Analyzer	Stock Part No.	Selection	Availability
Analytical Analyzer	50003691-501	UDA2182	↓

**TABLE I - Channel Inputs**

Channel 1 Input	Input Type	Stock Part No.	Selection	Availability
	None	N/A	NN1	•
	pH	51453313-501	PH1	•
	pH from Preamp	50009551-501	PA1	•
	Conductivity	51453316-501	CC1	•
	Dissolved Oxygen ppm	51453319-501	DM1	•
	Dissolved Oxygen ppb	51453319-502	DB1	•

**TABLE II - Channel Inputs**

Channel 2 Input	Input Type	Stock Part No.	Selection	Availability
	None	N/A	NN2	•
	pH	51453313-501	PH2	•
	pH from Preamp	50009551-501	PA2	•
	Conductivity	51453316-501	CC2	•
	Dissolved Oxygen ppm	51453319-501	DM2	•
	Dissolved Oxygen ppb	51453319-502	DB2	•

**TABLE III - Outputs and Relays**

Additional Analog Output & Relays	Description	Stock Part No.	Selection	Availability
	No Additional Analog Output or Relays	N/A	NN	•
	Additional 4-20 mA/0-20 mA output & 2 additional relays	51453328-501	C3	•

TABLE IV - Communications	Stock Part No.	Selection	Availability
Communications	N/A	N	•

**TABLE V - Options**

Option	Description	Stock Part No.	Selection	Availability
Mounting Hardware	None (Panel mounting only)	N/A	0 ___	•
	Pipe and wall mounting hardware	50001023-501	P ___	•
Instruction Books	CD Only (English)	50003501-501	_ 0 _ _	•
	Additional Paper Copy: English	70-82-25-119	_ E _ _	•
Certificates	None	N/A	_ _ 0 _	•
	Calibration & Conformance	N/A	_ _ C _	•
PID Control	No	N/A	_ _ _ 0	•
	Yes	N/A	_ _ _ C	•

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## Warranty/Remedy

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Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local 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 and fitness for a particular purpose**. Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

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