



Field Process  
Measurement and Control

The background of the entire page is a photograph of an industrial facility, likely a refinery or chemical plant, silhouetted against a bright, low sun. The sun is a large, glowing orb in the upper left quadrant, casting a warm, orange-yellow light across the sky and the scene. Several tall, dark vertical structures, possibly distillation columns or smokestacks, are visible on the left side. A complex network of pipes, walkways, and structural steel is silhouetted against the bright sky. The overall mood is industrial and powerful, with a focus on the scale of the facility.

## Improve Your Business Performance

Honeywell's comprehensive portfolio of measurement and control products, combined with our software solutions and open interfaces for data access, enable you to manage your plant assets and optimize your enterprise by providing the bedrock system critical measurement, control and data acquisition. From the sensor to the control room—and everything in between—we can help you to improve your quality and productivity and reduce total costs.

The elements of a total control solution. Networked or stand alone. We have them all.

# Your Complete Provider

Versatile products that are easy to configure,  
easy to operate and easy to maintain.

## Pressure Measurement

Honeywell's modular SmartLine® pressure offering includes differential pressure, absolute pressure, gauge pressure, flange and remote seal transmitter solutions with global agency and SIL certifications backed by an industry leading 15-year warranty.

## Temperature Measurement

The SmartLine smart temperature transmitter line is offered as a three-tiered solution, providing the right mix of price and performance to meet application needs. They are available in OEM packages and ready-to-install assemblies with globally accepted approvals, communications and diagnostics.

## Level Measurements

SmartLine Non-Contact and Guided Wave Radar Level Transmitters allow measurement of liquid level, solid/granular level or liquid interface. A common electronics platform makes installation, setup and user interface easy. The two wire design saves on wiring and reduces costs.

## Flow Meters

VersaFlow flow meters are built to our exacting standards for quality, performance and reliability backed up by a comprehensive global support network.

## Configuration and Device Management

A flexible suite of configuration and device management tools enable easy and reliable device configuration, monitoring, diagnosis and health management, for smart devices from Honeywell and other suppliers.

## Analytical Instruments

Honeywell offers a broad line of advanced sensors and instruments for measuring pH, ORP, conductivity and dissolved oxygen. Unique Analytical solutions keep plant operations running, smoothly, efficiently and safely.

## Controllers

Honeywell single and dual loop digital controllers and indicators provide precise control and indication of process variables with a wide choice of functionality. With Honeywell's complete line, we can offer a versatile solution for a variety of applications. All Honeywell controllers and indicators are highly reliable, easy to configure, flexible and versatile.

## Programmers and Indicators

Digital control programmers perform pre-determined processing or testing schedules on a time-versus-set point program. Honeywell offers programmers that perform basic to complex recipes and feature universal inputs, and multi-channel models.

## Recorders and Data Acquisition

Honeywell offers a comprehensive portfolio for all of your recording and data acquisition needs. Choose your format: strip chart, circular chart or paperless recorders for viewing, storing and managing your process data. In addition, Honeywell's powerful software suite provides networking capability and real time archiving.

## Wireless Solutions

Honeywell provides a single wireless network which supports multiple industrial protocols and applications simultaneously. Wireless solutions are simple to manage and efficient to operate.

## Modular Systems

A range of flexible automation and control solutions meeting the needs of many different industries like specialty chemicals, pharmaceuticals, metals, water/waste-water and pharmaceuticals, while avoiding the overhead of complex, non-integrated automation systems.

## Connectivity Solutions

OPC connectivity products and applications integrate Honeywell products with third-party SCADA, historians and human machine interfaces to provide secure, reliable open data connectivity.

## Electric Actuators

With over 100 years in the control industry, Honeywell offers an innovative portfolio to reliably manage and control your plant or mill measurements and reduce your total cost of ownership.





# Smart Pressure Transmitters

## SmartLine Pressure Transmitters

Modular, accurate and robust for the lowest cost of ownership

### SmartLine®

Honeywell's SmartLine smart pressure measurement system sets the standard for total performance in harsh process environments, featuring the industry's most modular and robust pressure transmitters.

With better performance, modular construction, an advanced graphic display and the best integration features available when used with Experion® PKS, Honeywell helps our customers reduce project costs and startup time, avoid unplanned downtime, improve product quality, reduce spare parts inventory and shorten time to repair.

The line includes two performance tiers with absolute, differential, gauge, remote seal, flanged (level) and multivariable transmitters as well as remote indicator products.

#### All are available with:

- Temperature and static pressure compensation
- Polarity insensitive electrical connections
- Modular design components
- SIL2 certified/SIL 3 capable standard
- Dual seal compliance
- Smart Connection Suite options, such as the ability to display maintenance mode and messages from the control room



### ST 800 Pressure

The SmartLine Pressure highest performance offering features:

- Suitable for critical process control loops, custody transfer and SIL2 safety
- Industry leading stability up to 0.01% span per year for ten years
- Accuracy up to 0.0375% of span standard and 0.025% span optional
- Wide range of materials and measurement spans
- Turndown ratios up to 400:1
- Available lifetime warranty

### ST 700 Pressure

Smart performance at conventional prices.

- Suitable for monitoring, control, and data acquisition
- Stability up to 0.02% span per year for five years
- Accuracy up to 0.05% of span
- Turndown ratios up to 100:1



# Smart Temperature Transmitters

## SmartLine Temperature and STT 3000 Series

Precision devices, proven in the field



### SmartLine Temperature Transmitter STT850

Similar to SmartLine Pressure, SmartLine Temperature transmitters deliver value with industry-leading performance, unique features that lower your total cost of ownership and the most efficient control system integration. With innovative modularity and an intuitive advanced graphics display, these products are ideal for a wide range of industrial process control and safety applications.

#### SmartLine Temperature also offers:

- Comprehensive on-board diagnostic capabilities for the sensor and the transmitter
- Built-in digital output option
- Polarity-insensitive electrical connections
- Sensor health trend through advanced display
- Dual compartment housing
- Single and dual input options
- TÜV SIL2 certified



### STT170

- Cost-effective, low-tier solution with 4-20 mA communications
- Universally PC programmable for both RTDs and thermocouples
- PC configuration
- Ultra compact size fits into the smallest DIN B head mount housing
- Sensor library with over a dozen of the most-used temperature sensor curves
- FISCO Certified
- FF DTM Support



### STT250

- Universal sensor inputs
- Compact size allows direct head mounting
- Remote communications
- Available with integral engineering units meter
- Dual input model with advanced diagnostics and redundant sensor
- Supports 4-20ma/HART Version 5 and 6/DE Output
- Sensor matching function
- TÜV SIL2 certification



### Temperature Measurement Assembly

An installation-ready temperature measurement assembly is offered with sensor heads, sensors, thermo wells and process connections. It is available in short delivery cycles and comes with custom calibration and agency approvals. These have an exceptional level of support that provide ease of engineering, procurement and installation.

#### The assembly is offered in three models:

- Rigid probe assembly
- Threaded and socket weld thermo well assembly
- Drilled and flanged thermo well assembly
- ATEX, CSA, FM Approvals available on all the STT800 Assemblies

# Level Measurement

## Non-Contact Radar

Stable level measurements that also deliver a low total cost of ownership

### The Universal Radar Solution

The SmartLine Non-Contact Radar (FMCW) is for level measurement of liquids and can be used to calculate for volume assessment. SmartLine Non-Contact Radar provides a more stable measurement than pulse radar and they are well suited for agitated process conditions.

### Highlights

- Standard accuracy  $\pm 3$  mm ( $\pm 0.04$  in)
- Reliable measurement in difficult process conditions
- Operates up to a flange temperature of 200°C (390°F) and 40 barg (580 psig)
- Measuring range up to 80 m (260 ft)
- Long antenna versions can be extended to suit nozzle length
- Configuration software and HART DTMs included as standard
- Optional second current output
- Direct-accessible graphic touchscreen/wizard (option)
- Converter rotates 360°
- Triple barrier gas-tight protection available for working with dangerous gases (using pre-stressed fused glass)

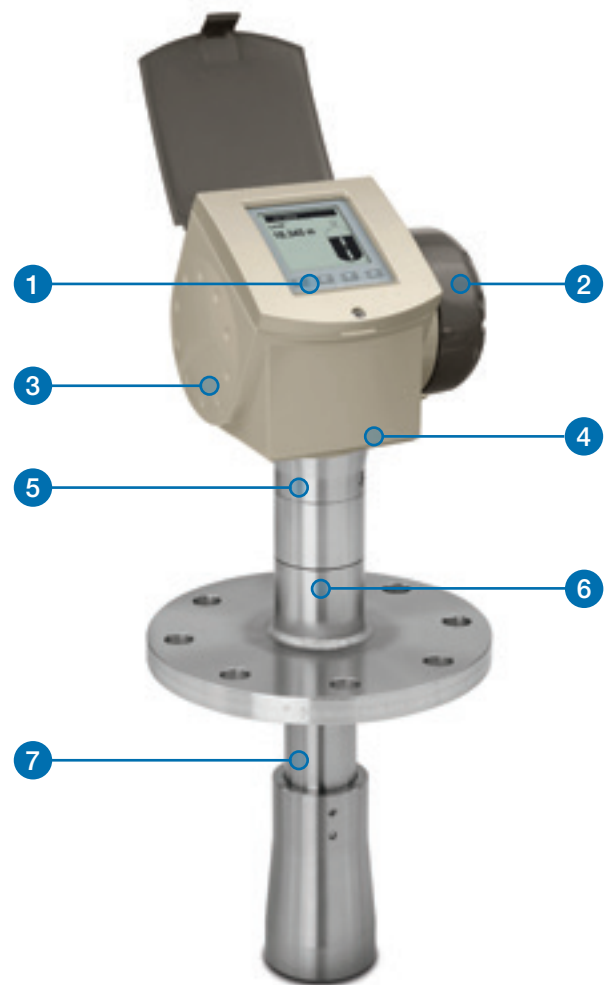
### Industries

- Chemicals
- Food & Beverage
- Iron, Steel and Metals
- Minerals & Mining
- Oil & Gas
- Petrochemical
- Pulp & Paper
- Water and Wastewater

### Applications

- Tanks with agitators
- Process tanks
- Storage tanks

### SmartLine Non-Contact Radar Level Meter



1. Optional touch screen with 4-button operation
2. Two-wire level meter
3. Same housing for Ex and Non-Ex
4. One converter for all applications
5. Rotatable housing
6. Optional Metaglas barrier
7. Antenna extension (for long nozzles)

# Level Measurement

## Guided Wave Radar

Stable level measurements that also deliver a low total cost of ownership

### The Superior TDR Solution

The SmartLine Guided Wave Radar is a Guided Radar (TDR: Time Delay Reflectometry) Level Meter for measuring distance, level, interface, level and interface, volume and mass. A variant with a remote housing can be mounted up to 14.5 m (47.6 ft) from the probe. The SmartLine Guided Wave Radar Level Meter has higher signal dynamics and a sharper pulse than conventional TDR devices and therefore better reproducibility and accuracy.

### Highlights

- Displays level and interface
- Easy navigation using a touch screen without opening the housing (installation wizard)
- Configuration software and DTMs included as standard
- Optional second current output—used for displaying interface measurements, for example
- Higher signal dynamics and sharper pulse improve accuracy
- Display in 9 languages—including Chinese, Japanese and Russian

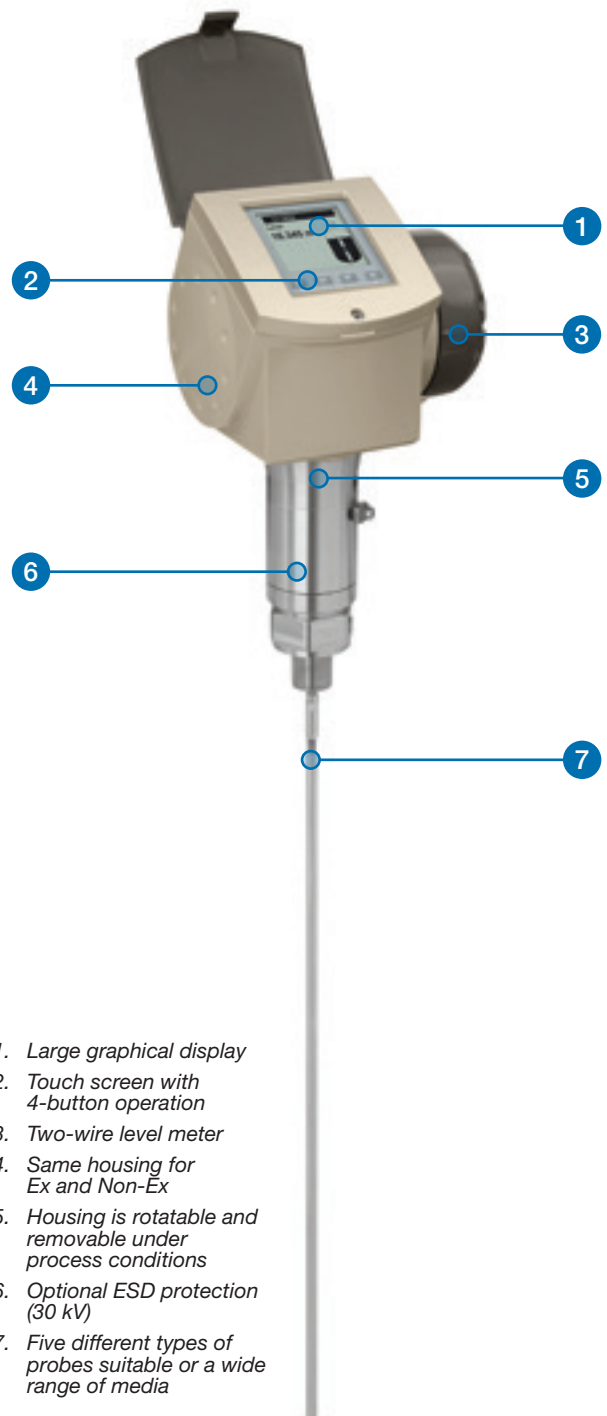
### Industries

- Chemicals
- Food & Beverage
- Minerals & Mining
- Oil & Gas
- Water and Wastewater

### Applications

- Blending tanks
- Distillation tanks
- Process tanks
- Separator
- Solid silos (inventory)
- Storage tanks

### SmartLine Guided Radar Level Meter



1. Large graphical display
2. Touch screen with 4-button operation
3. Two-wire level meter
4. Same housing for Ex and Non-Ex
5. Housing is rotatable and removable under process conditions
6. Optional ESD protection (30 kV)
7. Five different types of probes suitable for a wide range of media

# Flow Measurement

## Flow Meters

Accurate and reliable flow measurements for the most demanding applications



VersaFlow	Electromagnetic Flow Meter	Coriolis Mass Flow Meter	Vortex Flow Meter	Clamp-on Ultrasonic Flow Meter
<b>Benefits</b>	Proven technology Expanded application capabilities Wide range of process conditions Easy to install and operate Sizes to fit your requirements Resistant to acids and alkalis	Improved safety A wide range of flow applications Reduced maintenance cost and worry Improved performance Reduced maintenance time and cost	Reduced installation cost and improved performance Rugged, long-lasting design for the toughest applications Easy to install and maintain Multiple parameter monitoring	Reduced installed cost and improved performance Low cost to service and maintain
<b>Features</b>	250,000 units in operation Conductivity down to 1 µS/cm Temperature up to 180°C (356°F) Easy to select, fit and forget Available sizes: 0.1 to 80 inches (DN 2.5 - 3000) Various electrode materials available Standard liners: PTFE, PFA, ETFE, hard rubber and polyurethane	Secondary pressure containment around sensor Pressure-resistant jacket up to 100 bar (1450 psi) 0.3 to 430,000 kg/h of flow Easily drained and easy to clean Excellent zero stability Rapid signal processing even with product and temperature changes and sudden changes in density Modular electronics concept and data redundancy—sensor and plug-and-play electronics easy to replace	2-wire device with integrated pressure and temperature compensation Non-wearing, fully welded stainless steel construction with high corrosion, pressure and temperature resistance Optimal process reliability thanks to ISP (Intelligent stable readings, free of external signal processing) Ready to use—plug-and-play Maintenance-free sensor design Pressure and temperature can be called up via HART	Minimized uncertainty Easy sensor mounting Optimized reliability Installation wizard Minimal maintenance All in one system Efficient regreasing concept Portable configuration is available
<b>Applications</b>	Suitable for all conductive applications From clean liquids to slurries and pastes with high solids content Abrasion, chemical and vacuum resistant Suitable for high temperatures Custody Transfer Applications	Viscous or shear-sensitive products Products requiring low flow velocities In homogeneous mixtures Products with entrained solids or gas Flow and purity measurement Density, temperature and concentration measurement Custody Transfer Applications	Superheated and saturated steam measurement Steam boiler monitoring Monitoring of compressor output Measurement of consumption in compressed air systems Measurement of consumption of industrial gases SIP and CIP processes in the food, beverage and pharmaceutical industries Measurement of conductive and non-conductive liquids	Chemical addition Potable water General process control Purified water Broad range of refined hydrocarbons Sanitary flow rate measurements De-ionized and demineralized water Cooling water/district heating water
<b>Industries</b>				
Chemicals	✓	✓	✓	✓
Petrochemical	–	✓	–	✓
Food & Beverage	✓	✓	–	✓
Minerals & Mining	✓	✓	–	–
Oil & Gas	✓	✓	✓	✓
Pharmaceuticals	✓	✓	–	✓
Power Plants	✓	✓	✓	✓
Pulp & Paper	✓	✓	✓	–
Water	✓	✓	✓	✓
Wastewater	✓	✓	–	–
Iron, Steel & Metals	–	✓	✓	–
Automotive	–	–	✓	–



# Software Tools

## Configuration and Management Tools

Trouble-free and reliable device management



### **SCT 3000 Smartline Configuration Toolkit**

Smartline Configuration Toolkit is a PC-based engineering and maintenance tool designed specifically for use with Honeywell's family of smart field devices based on the DE protocol.

- Access to configuration database parameters
- Verifies all parameters are correct
- Enables "Management of Change"
- Microsoft Windows 95b, 98, NT (4.0), 2000 and XP

Honeywell's software tools help users configure, install, manage and maintain smart field devices efficiently. All products are intuitive and feature rich and easy-to-use interfaces for plant maintenance engineers, managers and instrument technicians to manage field devices



### **Honeywell MC Toolkit**

The MC Toolkit handles multiple communication protocols, letting you configure, monitor, diagnose, and manage smart devices from Honeywell and other suppliers. This handheld configurator is available in intrinsic as well as non intrinsic safe versions suitable for usage in safe as well as hazardous areas.

- Configures both DE and HART protocols and provisions Honeywell ISA100 Wireless\* devices
- Automatically verifies device identification and database configuration
- Provides full self-diagnostic and device diagnostic support
- Configures any HART device with a published HART Device Descriptions (DD), regardless of device manufacturer



### **Field Device Manager Express**

Field Device Manager Express software is versatile and flexible, enabling process plant engineers and operators to perform on-the-go smart device maintenance anywhere in the plant. It operates with Windows™ 7 laptop or desktop operating systems and is used for managing and configuring smart HART and Profibus field instruments.

- Provides full access to device parameters, configuration wizards, diagnosis procedures
- On-line and off-line device configuration and maintenance information support using both EDDL and DTM technologies
- Simplifies commissioning and maintenance with an easy-to-use interface for common tasks
- Automatic device discovery
- Provides device history as a way to easily compare today's configuration with last week's or last month's known setup

# Analytical Instruments

## Smart Sensors

Unique measurement technology

### Unique Innovations

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.



### 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

### 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

### High Performance HB Series

Unique, rugged reference technology extends the lifetime in harsh process applications. This saves on maintenance and replacement costs.

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

### 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

### 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

# 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)
- CO<sub>2</sub> 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

# Analytical Instruments

## 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.



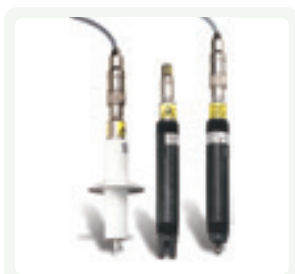
Instruments	UDA2182 Universal Dual Analyzer	DirectLine® Model DL421/422	APT 2000/4000pH Transmitter/Analyzer
Measurement	pH/ORP	pH/ORP	pH/ORP
Case (HxWxD)	Plastic Enclosure Made of GE Valox® 357 CSA Type 4X (NEMA 4X)	Plastic Polysulfone Enclosure, NEMA4X, 123 x 48 x 46 mm (4.84 x 1.89 1.81 in)	Plastic 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



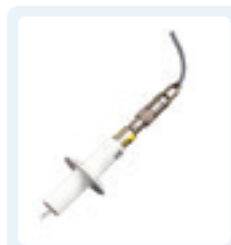
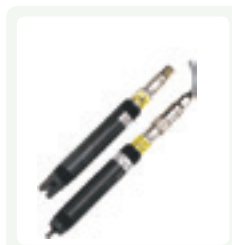
# Analytical Instruments

## pH/ORP

Improved accuracy to optimize your process



Sensors	DuraFet® Solid State pH Electrode	Meridian 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

# Analytical Instruments

## 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	<b>UDA2182 Universal Dual Analyzer</b>	<b>DirectLine Model DL423</b>	<b>APT 2000/4000CC Contacting Conductivity</b>	<b>APT 2000/4000TC Toroidal Conductivity</b>
<b>Case (HxWxD)</b>	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
<b>Display</b>	LCD dot matrix, 128 x 64 dpi	LCD 4-digit, 7-segment	7-segment LCD display	7-segment LCD display
<b>Display Accuracy</b>	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)
<b>Control Capabilities /Advanced Features</b>	PID control; Pocket PC and infrared configuration, temp. compensation curves; CO <sub>2</sub> 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
<b>Operating Conditions</b>	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 131°F)
<b>Operating Voltage</b>	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
<b>Analog Outputs</b>	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
<b>Relays</b>	Up to 4 relays	N/A	2000: N/A; 4000: Hi/Lo alarm relays	2000: N/A; 4000: Hi/Lo alarm relays
<b>Mountings</b>	Pipe, wall, or panel	Remote: pipe, wall or DIN rail	Pipe, wall or panel	Pipe, wall or panel
<b>Approvals</b>	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	<b>4973 Contacting Conductivity Cells</b>	<b>4905 Contacting Conductivity Cells</b>	<b>4909 Contacting Conductivity Cells</b>	<b>5000TC Toroidal Conductivity Cells</b>
<b>Measurement Range</b>	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
<b>Pressure and Temperature</b>	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)
<b>Materials of Construction</b>	Titanium or graphite	Nickel or platinum	Nickel or platinum	Polypropylene, PVDF, PEEK, PFA Teflon
<b>Mountings</b>	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

# Analytical Instruments

## Dissolved Oxygen

Patented techniques for DO monitoring



Instruments	UDA2182 Universal Dual Analyzer	DL424 ppm	DL425 ppb
<b>Case</b>	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)
<b>Display</b>	LCD dot matrix, 128 x 64 dpi	LCD 4-digit, 7 segment	LCD 4-digit, 7 segment
<b>Display Accuracy</b>	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
<b>Operating Conditions</b>	0° to 60°C (32° to 140°F)	-20° to 60°C (-4° to 185°F)	-20° to 60°C (-4° to 185°F)
<b>Control Capabilities/Advanced Features</b>	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
<b>Operating Voltage</b>	90-264 Vac; 47-63 Hz	16-42 Vdc	16-42 Vdc
<b>Analog Outputs</b>	Up to three 4 to 20mA	One (1) 4 to 20 ma	One (1) 4 to 20 ma
<b>Relays</b>	Up to 4 relays	N/A	N/A
<b>Mountings</b>	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
<b>Approvals</b>	CE; FM Class 1, Div. 2; UL/CSA General Purpose	UL and CSA general purpose	UL and CSA general purpose



<b>Sensor</b>	<b>DL5000 Equilibrium Probe for ppm &amp; ppb application</b>
<b>Measurement Range</b>	0-20,000 ppb or 0-20 ppm
<b>Temperature Range</b>	2° to 60°C (35.6° to 140°F)
<b>Pressure and Temperature Ratings</b>	316SS: 50 psi (345 kPa) CPVC: 30 psi (207 kPa)
<b>Materials of Construction</b>	316SS or CPVC housing
<b>Special Features</b>	Equilibrium probe design requires no internal probe maintenance
<b>Mountings</b>	Immersion in tank, in-line or sample flow chamber
<b>Dimensions (OD)</b>	219 x 34 mm (8.62 x 1.32 in), 1 inch NPT pipe size, 20 feet waterproof cable
<b>Response Time</b>	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 dearator efficiency or ppm DO levels in wastewater, environmental and process applications for control and compliance.

# Analytical Instruments

## Gas Analyzers

Greater value and enhanced performance

### Thermal Conductivity

A thermal conductivity system that measures concentrations of hydrogen purity and CO<sub>2</sub> gas. This measurement is typically made in hydrogen-cooled generators.

### 7866 Digital Thermal Conductivity Analyzer

The 7866 Thermal Conductivity Analyzer is designed to provide a highly sensitive and accurate analysis of a binary (2-component) mixture of gases. The analyzer can also be calibrated to measure a single component of a multicomponent gas mixture, providing the background gases constitute a stable mixture (such as air), or have approximately the same thermal conductivity. It uses the principles of thermal conductivity, to determine the concentration of a sample gas through the measurement of thermal losses from two highly stable, matched thermistor probes inserted in a stainless steel block.

- Easy to use prompts
- Security code protected
- Reliable solid state design
- High speed of response
- High sensitivity
- Excellent stability
- Low maintenance requirement
- Low installation costs through optional remote mounting capability of the sensing unit (transmitter)
- Explosion-proof housing on the sensing unit available for Class1, Div1 areas
- Signal transmission from the sensing unit up to 1000 feet over unshielded lead wires
- Panel-mounted 1/4 DIN control unit with easy-to-read display
- Current output signal from the control unit representing measured PV
- Single or dual alarms
- A triple range analyzer for hydrogen-cooled generator applications is available
- Optional Modbus communications supports configuration and data acquisition

H <sub>2</sub> Purity Gas Analyzer	7866 Analyzer
Accuracy	±2% of span
Response Time (for H <sub>2</sub> )	Initial, <1 sec 63%, 13 sec, 90%, 23 sec, 99%, 40 sec
Measuring Range	1, 2 or 3 as specified
Sample Requirement (Sensing Unit)	0.2 to 4.2 cfm flow 37 mm Hg Pressure min.
Power Requirement (Control Unit)	Universal 90 to 264 Vac, 50 to 60 Hz
Weight (Sensing Unit/Control Unit)	8.5 kg (18 3/4 lb)/1.3 kg (3.0 lbs)



### 7872 Gas Sampling System

The pre-packaged 7872 sampling system provides a complete pre-engineered panel designed specifically for hydrogen cooled generator applications in utility, paper mills and other co-generation applications. The sampling system allows easy, convenient calibration of all three ranges.

The 7872 sample panel is an optional part of the 7866 analyzer and includes all components mounted on a single steel panel. Components of the sampling system include:

- Flow Control Module
- Calibration Module and Bypass Module
- Pressure Regulator
- Air Filter
- Rugged Stainless Steel Tubing, Valves and Fittings

Sampling System	7872 Sample Panel
Construction	12 gauge steel, enamel finish, with components mounted, piped and tested
Dimensions (W x H x D)	53.7 x 76.2 x 15.4 cm (21 x 30 x 6 in)
Weight (approx.)	50 lbs (22.5 kg)
Calibrating Gases	CO <sub>2</sub> , H <sub>2</sub> and 75% H <sub>2</sub> in N <sub>2</sub>
Sample Temperature	Up to 104°C (220°F)
Sample Pressure	1 to 100 psig (6.9 to 69 kPa)



# Controllers

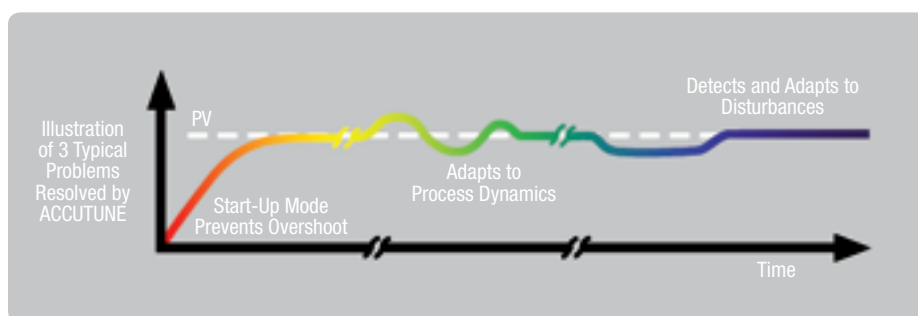
## Universal Digital Controllers

Simple to install, easy to configure and easy to operate



Universal Digital Controllers	DC 1000	UDC 700	UDC 1200
<b>Product Description</b>	DC 1000 family of microprocessor based controllers combine a high degree of functionality and reliability at a very low price in 4 different DIN sizes.	The UDC 700 is a 1/32 DIN format, OEM controller designed for a large number of applications.	The UDC 1200 provides a high degree of functionality and reliability in a small format (1/16 DIN) at a very low price. A limit control model is also available.
<b>Front Face Format</b>	48 x 48 mm (1.89 x 1.89 in) 48 x 96 mm (1.89 x 3.78 in) 72 x 72 mm (2.83 x 2.83 in) 96 x 96 mm (3.78 x 3.78 in)	49 x 25 mm (1.93 x 0.98 in)	48 x 48 mm (1.89 x 1.89 in)
<b>Analog Inputs</b>	1 or 2	1	1
<b>Input Signal Types</b>	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, mA	Thermocouples, RTDs, mV, V, mA
<b>Digital Inputs</b>	N/A	N/A	1
<b>Analog Outputs</b>	Up to 2	N/A	Up to 3
<b>Digital Outputs Control</b>	Up to 2	Up to 2	Up to 2
<b>Digital Outputs Alarm</b>	Up to 3	Up to 2	Up to 2
<b>Accuracy (at ref. cond.)</b>	±0.5% of F.S.	±0.1% of span	±0.1% of span
<b>Loops</b>	1	1	1
<b>Networking</b>	RS232 or RS485 ASCII	RS485 Modbus	RS485 ASCII or Modbus

### ACCUTUNE™ II with Fuzzy Logic (Available on the UDC 2500, UDC 3200 and UDC 3500 Controllers)



Accutune II provides a new truly plug-and-play tuning algorithm which will, at the touch of a button or through a digital input, accurately identify and tune any process including integrating processes and those with dead-time. This speeds up and simplifies startup, plus allows retuning at any setpoint. Also

included is the original Accutune adaptive tuning algorithm that can automatically and continuously retune whenever a setpoint step change is implemented or whenever a process variable disturbance occurs.

Fuzzy logic is used to suppress process variable overshoot due to setpoint changes or externally induced process disturbances. It operates independently

from Accutune tuning. It does not change PID constants, but temporarily modifies the internal controller response to suppress overshoot. This allows more aggressive tuning to co-exist with smooth process variable responses. It can be enabled or disabled depending on the application or the control criteria.

# Controllers

## Universal Digital Controllers

Simple to install, easy to configure and easy to operate



Universal Digital Controllers	UDC 1700	UDC 2500	UDC 3200	UDC 3500
<b>Product Description</b>	The UDC 1700 is a 1/8 DIN microprocessor based controller. It provides high quality and performance at low cost	The UDC 2500 is a low-cost digital controller providing multi-language prompts (FR, EN, GE, IT, SP) and code for unmatched operating simplicity	The UDC 3200 is a 1/4 DIN general purpose digital controller offering a high degree of functionality and operating simplicity	The UDC 3500 with dual loop and math capability is ideal for process applications
<b>Front Face Format</b>	48 x 96 mm (1.89 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)
<b>Analog Inputs</b>	1	1 high level, 1 universal	2 universal	4 high levels, 1 universal
<b>Input Signal Types</b>	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic, carbon, oxygen	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic, carbon, oxygen
<b>Digital Inputs</b>	1	2	2	4
<b>Analog Outputs</b>	Up to 3	2 (4 to 20 mA)	2 (4 to 20 mA)	3 (4 to 20 mA)
<b>Digital Outputs Control</b>	Up to 2	Up to 2	Up to 2	Up to 4
<b>Digital Outputs Alarm</b>	Up to 2	Up to 2	Up to 2	Up to 4
<b>Accuracy (at ref. cond.)</b>	±0.1% of span	±0.25% of span	±0.2% of span	±0.10% of span
<b>Loops</b>	1	1	1	2
<b>Networking</b>	RS485 ASCII or Modbus	Ethernet or Modbus RTU	Ethernet or Modbus RTU	Ethernet or Modbus RTU
<b>Infrared Port</b>	Yes	Yes	Yes	Yes

### Honeywell Controller Value

Every Honeywell Controller, Programmer and Indicator offers you the best price/performance ratio compared with any competitive instrument in its class. Our complete line is engineered to provide you with “targeted functionality”—solutions tailored to your specific process control requirements—so you only buy what you need.

- Clear and informative operator interface
- Easy to setup and operate
- Straightforward installation and maintenance
- Single-button turning for precise control
- Fuzzy logic overshoot suppression
- Unsurpassed quality and support

### Process Instrument Explore (P.I.E.) Software

P.I.E. is a PC based, intuitive software program that runs on a Pocket PC, desktop or laptop. It can be used either online or offline to create UDC2500, UDC3200 and UDC3500 configurations. Configurations can be easily downloaded to the controller via its communication or infrared port.

### Infrared Communication Port

Each UDC2500, UDC3200 and UDC3500 has an infrared communications port that provides a non-intrusive connection to the controller while maintaining Type 4X and IP66 integrity. You can duplicate an instrument's configuration, obtain maintenance information just by pointing your Pocket PC in the direction of the instrument.

# Programmers and Indicators

## Digital Controller Programmers and Indicators

Simple to install, easy to configure and easy to operate



Digital Controller Programmers	DCP 50	DCP 100	DCP 300	DCP 551
<b>Product Description</b>	The low-cost DCP 50 is ideal for set point programming applications where space is at a premium.	The low-cost, ¼ DIN format DCP 100 programmer is an entry-level product in the Set Point Programmer range. It provides an attractive price/performance ratio.	The general-purpose DCP 300 programmer is fully dedicated to execute control of temperature, humidity, pressure, flow and other variables.	The high-performance DCP 551 programmer provides advanced setpoint programming, sensing, SP generation, ramp and soak switching and timing in one unit.
<b>Front Face Format</b>	48 x 48 mm (1.89 x 1.89 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	144 x 144 mm (5.67 x 5.67 in)
<b>Programs</b>	4	8	19	99
<b>Segments Per Program</b>	16	16	30	99 (2000 total max)
<b>Analog Inputs</b>	1	1	1 or 2	1 or 2
<b>Digital Inputs</b>	1	6	12	16
<b>Analog Outputs</b>	Up to 3	Up to 3	Up to 3	Up to 3
<b>Digital Outputs</b>	Up to 2	8	8	16 events
<b>Accuracy (at ref. cond.)</b>	±0.25% of span	±0.25% of span	±0.1% of span	±0.1% of span
<b>Loops</b>	1	1	1 or 2	1 or 2
<b>PID Group</b>	1	1	8	9
<b>Networking</b>	RS485 Modbus	RS485 ASCII or Modbus	-	RS485 ASCII



Programmers	DCP 200	Indicators	UDC 703	UDI 1700
<b>Product Description</b>	¼ DIN format, a graphic/text LCD display is an affordable temperature and process controller with advanced functionality including profiling and datalogging options.	<b>Product Description</b>	The UDC 703 is a 1/32 DIN format indicator for small space requirements.	The UDI 1700 is a horizontal, 1/8 DIN format, low-cost indicator for most process variable types.
<b>Front Face Format</b>	96 x 96 mm (3.78 x 3.78 in)	<b>Size (L x H x D)</b>	48 x 25 x 100 mm (1.93 x 0.98 x 3.94 in)	96 x 48 x 100 mm (3.78 x 1.89 x 3.94 in)
<b>Programs</b>	64	<b>Accuracy</b>	±0.10% of span	±0.10% of span
<b>Segments Per Program</b>	255	<b>Analog Inputs</b>	1 universal	1 universal
<b>Analog Inputs</b>	1	<b>Input Signal Types</b>	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, V, mA
<b>Digital Inputs</b>	2	<b>Display Types</b>	4 digits-LED (red)	4 digits-LED (red)
<b>Analog Outputs</b>	Up to 3	<b>Alarm Set Points</b>	2	3
<b>Digital Outputs</b>	8	<b>Digital Input</b>	No	Yes
<b>Accuracy</b>	0.1%	<b>Transmitter Power</b>	No	Yes
<b>Loops</b>	1	<b>Networking</b>	RS485 Modbus	RS485 ASCII or Modbus
<b>PID Group</b>	1			
<b>Networking</b>	RS232, RS485, Ethernet			

# Recorders and Data Acquisition

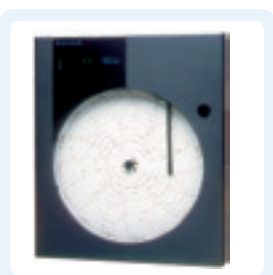
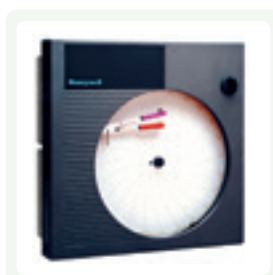
## Circular and Strip Chart Recorders

Dependable, versatile and low maintenance

### Circular Chart Recorders

Honeywell Circular Chart Recorders are preferred for batch processes. The circular chart record displays the entire batch operation over a specific unit of time, from one hour to 31 days.

An additional advantage of the circular chart record is easy filing and copying for reference. Compared to the strip chart record, the circular chart has a shorter calibrated chart width.



Circular Chart Recorders	DR4300 Basic	DR4300	DR4500 Classic	DR4500 Truline
Chart Size	254 mm (10 in)	254 mm (10 in)	305 mm (12 in)	305 mm (12 in)
Reference Accuracy	0.35%	0.20%	0.10%	0.10%
Analog Inputs	2	2	2	4
Digital Display	N/A	Yes	Yes	Yes
Chart Type	Preprinted	Preprinted	Preprinted	Self-printing thermal paper
Control	N/A	2 loops	2 loops	2 loops
Math	N/A	Totalization	Yes	Yes
Networking	N/A	Modbus RTU	Modbus RTU	Modbus RTU
Optional Software	N/A	Trend Manager Pro/Specview	Trend Manager Pro/Specview	Trend Manager Pro/Specview



### Strip Chart Recorders

Honeywell Strip Chart Recorders are most commonly chosen for continuous processes where the chart record allows the operator to quickly detect out-of-tolerance deviations over a long-term trend. The long length of the strip chart allows recorders to run unattended for long periods without the necessity for frequent chart replacement.

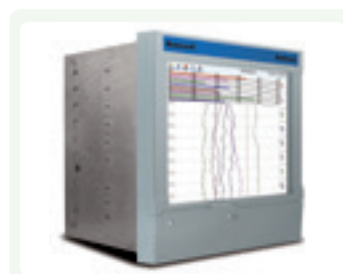
Strip Chart Recorders	DPR180	DPR250
Display	Digital	Digital
Paper Width	180 mm (7.09 in)	250 mm (9.84 in)
Reference Accuracy	0.05%	0.05%
Multipoint Channels	24	64
Continuous Pens	N/A	N/A
Roll or Fan-Fold Charts	Yes	Yes
Configuration	PC or Keyboard	PC or Keyboard
Data Storage	PCMCIA; Compact Flash	PCMCIA; Compact Flash
Networking	ASCII, Modbus, RTU	ASCII, Modbus, RTU Modbus TCP/IP
Optional Software	Trend Manager Pro/Specview	Trend Manager Pro/Specview



# Recorders and Data Acquisition

## Paperless Recorders and Data Acquisition

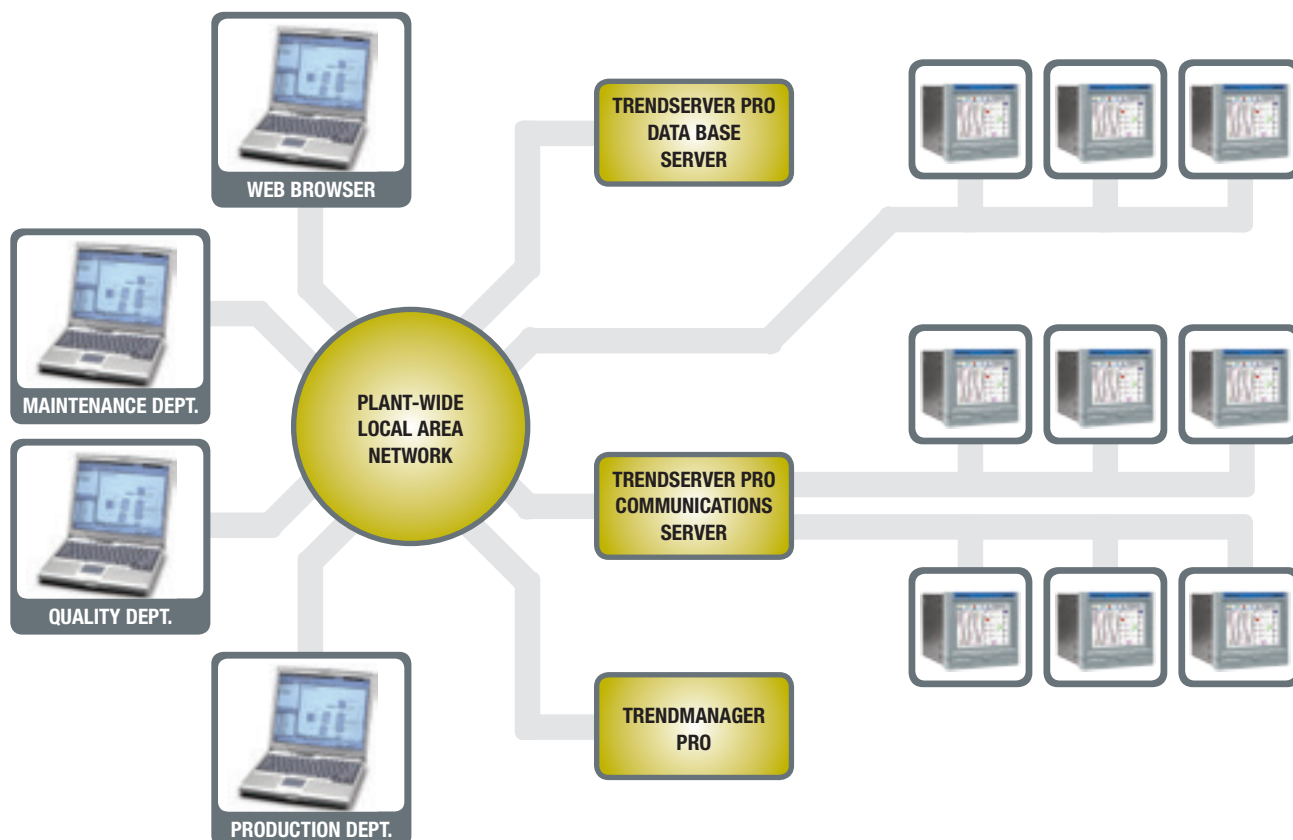
Electronic data for improved decision-making



Paperless Recorders	eZtrend	Minitrend	Multitrend
<b>Displays</b>	145 mm (5.7 in) Color LCD (Active TFT) QVGA	145 mm (5.7 in) Color LCD (Active TFT) VGA	307 mm (12.1 in) Color LCD (Active TFT) XGA
<b>Analog Inputs</b>	Up to 12	Up to 16	Up to 48
<b>Data Storage</b>	SD card / USB memory key	SD card / USB memory key	SD card / USB memory key
<b>Sample Rate</b>	100/200/500ms	20 ms (linear input)* / 100 ms	20 ms (linear input) / 100 ms
<b>Digital I/O</b>	Up to 8DI/8DO	Up to 16DI/16DO	Up to 48DI/48DO
<b>Networking</b>	Ethernet / OPC Server	Ethernet / RS485 / OPC Server	Ethernet / RS485 / OPC Server
<b>Math Functions/Math Scripts</b>	Yes/No	Yes/Yes	Yes/Yes
<b>Reference Accuracy</b>	0.1% Typical-T/C	0.1% Typical-TC	0.1% Typical-TC
<b>Configuration</b>	PC or front panel	PC or front panel	PC or front panel
<b>Remote Viewing</b>	Yes	Yes	Yes

Electronic data acquisition instruments are the perfect solution for applications within the Power, Water Treatment, Thermal Processing, Food & Beverage, Pharmaceutical/Biotech and

Manufacturing industries. U.S. regulatory agencies have accepted electronic data storage. Title 21 CFR Part 11 of Federal Regulatory Affairs details the acceptability of electronic records.



# Recorders and Data Acquisition

## Paperless Recorders and Data Acquisition

Electronic data for improved decision-making

### TrendManager Software Suite

Trendview's reliable paperless recorders and software makes recording easier and the data more accessible to improve decision making. The TrendManager Software Suite includes the standard TrendViewer software package; the TrendManager Pro advanced data analysis and archiving software; the TrendServer Pro fully network aware software for communications with recorders; and the Screen Designer software for creating customized screen layouts. This low-cost, flexible, easy-to-use software suite sets the "-trend" recorders apart from all the others.

### The Paperless Advantage

#### Easy to Use

Dedicated display keys and full screen menus allow operators to quickly access and interpret information.

#### Improved Decision Making

On-line data analysis allows fast operator response during process upsets.

#### Meets Documentation Requirements

Permanent archived records of process and configuration data can be stored to disk and easily replayed on the recorder or personal computer using the data analysis software.

#### Easy to Operate and Maintain

Reduced maintenance costs, elimination of consumable pens and paper and increased reliability since mechanical print assemblies have been eliminated.

#### Easy to Own

Paperless recorders offer significant improvements over traditional paper recorders. Their inexpensive storage media and full-color LCD display reduces operating costs and improves data analysis. The lack of vulnerable print mechanisms and other mechanical parts improves reliability.

#### Easy to Network

Products can be connected directly to the Local Area Network (LAN) via Ethernet using Modbus TCP/IP protocol. Using the LAN, multiple departments can access these instruments for real time data acquisition.

### TrendViewer

- View, graph and print stored data
- Print configurations and process data

### TrendManager Pro

Industry leading PC based data analysis package that support:

- Importing data from any recorder
- Importing data from any Honeywell solutions such as DPR180, DPR250 and HC900 controller
- Archiving data
- Multi-level, multi-user passwords
- Graph, plot & export data across any recorder, pen or time frame
- Audit trails
- Configuration of recorders
- Batch recorder management
- Export data files in CSV format

### TrendServer Pro

Industry leading PC based communications software to network your recorder:

- Handles client/server architecture
- Schedule downloads of recorder data (FTP transfers)
- Remotely configure recorders
- Real time data acquisitions
- Communicate via RS485 and/or Ethernet
- Integrated OPC Server support
- Modbus, FTP, web browser
- Batch Report Tool
- IQ/OQ Protocol Tool

### Database Management Tool

Provided with TrendServer Pro

- Provides safe administration of data
- Archive, sort, move, copy or delete data in local or remote database
- Use tree structure for easy understanding of where files are located
- Data viewed by recorders or monthly archive
- Allows storage of data to secure server

### Screen Designer

Custom displays to exactly suit your application

- Total design flexibility to produce customized screen layouts
- Design the screen that will best monitor your process
- Includes bitmap picture input for easy process understanding

### Tools

- AMS2750D Report Tool
- Generate Survey Reports

# Wireless Solutions

## Wireless Field Devices

Simple and efficient network that enables increased safety, reliability and efficiency

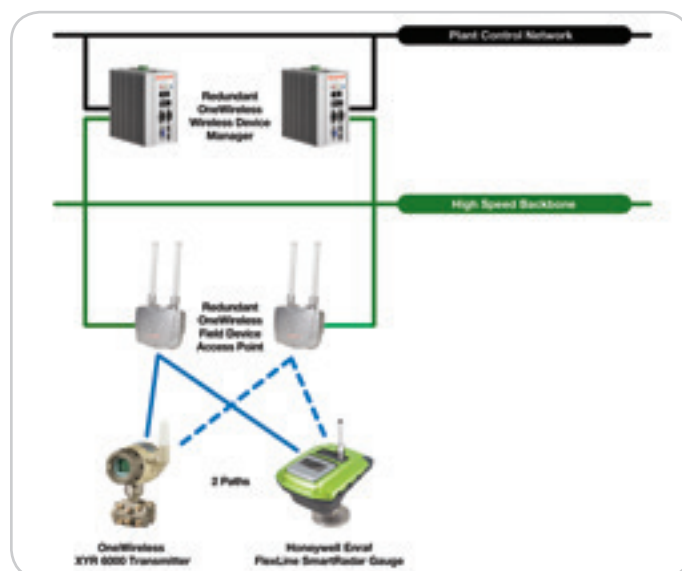


The Honeywell OneWireless™ Network is a multi-application network that can be tailored to offer the wireless coverage needed for industrial applications; from a simple field instrument network (ISA 100 Wireless) to a completely integrated, plant-wide multi-application network (Wi-Fi and ISA100 Wireless). OneWireless Solutions offer several benefits beyond avoiding wiring costs such as helping customers optimize plant productivity, ensuring safety, meeting regulatory compliance and improving asset reliability. Supporting Honeywell OneWireless XYR™ 6000 wireless transmitters and the Honeywell OneWireless Adapter, this network delivers a global solution with robust security, predictable power management and multi-speed monitoring. Attributes and benefits include:

- Single plant wide wireless infrastructure for lowest total cost of ownership
- Open, standards based system providing choice of product and supplier
- Best integrated industrial security available today
- Extremely reliable mesh system—field proven for best uptime
- Flexible and scalable for designing the network that best fits the application need

### OneWireless XYR 6000 Transmitters

OneWireless XYR 6000 Transmitters provide highly accurate pressure, temperature, analog input, valve position, digital input measurements or a digital output, and transmit the measured value wirelessly using the 2.4 GHz ISM band and ISA100 Wireless open protocol to a Honeywell access point or OneWireless Field Device Access Point gateway. XYR 6000 transmitters provide the ability to obtain data from remote and hazardous measurement locations without the need to run wires.



### OneWireless Adapter

The OneWireless Adapter (OWA) transforms a HART device into an ISA100 Wireless compliant wireless device, transmitting this valuable information back to a host system wirelessly. The OWA provides access to: 4 HART dynamic variables (PV, SV, TV, FV), multivariable data, calibration and diagnostic information, device configuration parameters.

### XYR 3000 Wireless Multiplexer I/O, Modems and Gateways

Honeywell XYR 3000 products provide a simple and reliable means of implementing a wireless solution for applications with high-density I/O concentrations, providing the lowest cost per wireless measurement point, enabling new applications. Gateway and modem products provide wireless interfaces between data buses such as Ethernet, RS232 and RS485.

# Wireless Transmitters

## OneWireless XYR 6000

Simple and efficient network that enables increased safety, reliability and efficiency.

Transmitters	XYR 6000 Transmitters (condensed specifications)
<b>Radio Frequency:</b>	2.4 GHz, License Free, Direct Sequence Spread Spectrum (DSSS) Technology; ISA100.11a Compliant
<b>Sensors Radio Power:</b>	125-400 mW
<b>Range:</b>	305 m (1000 ft) with Integral 2 dBi Antenna
<b>Transmitter Power:</b>	2 "D" size 3.6 V Li - Non Rechargeable Batteries
<b>Battery Life:</b>	Up to 10 years
<b>Diagnostics:</b>	Extensive Device Status Capability
<b>Wireless Solutions:</b>	OneWireless Compatible and ISA100 Compliant
<b>Software:</b>	Local and Software Configurable
<b>LCD Display:</b>	Local, Alpha Numeric, 8 Segment, Always On
<b>Operating Temperature:</b>	-40° to 85°C (-40° to 185°F)
<b>Hazardous Approvals:</b>	FM, CSA, ATEX, IECEx, InMetro, SAE
<b>Enclosures:</b>	NEMA Type 4X, IP 66/67 and NEMA 8 (Explosion Proof), Stainless Steel Housing Available
<b>Connection:</b>	Optional 4dBi Integral, Remote 8 dBi Omni Directional or 14dBi Directional antennas
<b>Differential Pressure</b>	
<b>Ranges:</b>	400" H <sub>2</sub> O (1,000 mbar), 100 psi (7,000 mbar), 3000 psi (210,000 mbar)
<b>Gauge Pressure</b>	
<b>Ranges:</b>	500, 3000, 6000 and 10,000 psi (35, 210, 415 and 690 bar) In-Line Meter Body; 500 and 3000 psi, Dual-Head Meter Body
<b>Absolute Pressure</b>	
<b>Ranges:</b>	500 psia (35 barA)
<b>Flange Mount:</b>	
<b>Ranges:</b>	400" H <sub>2</sub> O (1000 mbar), Pseudo Flange, 100 psi (7000 mbar)
<b>Remote Seal:</b>	
<b>Ranges:</b>	400" H <sub>2</sub> O (1000 mbar), 100 psi (7000 mbar) DP; 500 psi (35 bar), 3000 psi (210 bar) GP; 500 psia (35 barA) AP
<b>Temperature/DI</b>	
<b>Remote Probe:</b>	Temperature + DI; 3 TC Max, 2 RTD Max, 3 DIs Max
<b>Integral and Remote Probe Configurations Available</b>	
<b>Analog Input</b>	
<b>Accuracy:</b>	4-20 or 0-20ma/0-5 or 1-5V ±0.10%
<b>Discrete Inputs</b>	
<b>Position:</b>	Three Inputs; Dry Contact Only, No Voltage or Current; 1 Kohm Maximum Impedance
<b>Provides position monitoring for items like linear distances or valve position</b>	
<b>Acoustic:</b>	
<b>Not Available</b>	
<b>Base Radio:</b>	
	FDAP, Multinode/Gateway; 2-802.11 a/b/g (Wi-Fi/Wireless Ethernet) 1-(ISA100 Compliant) Sensor Radio 2-Ethernet Cables for Optional Connections to Wired Devices
<b>Power:</b>	24 VDC ±10% at 25 Watts; -40° to 75°C (-40° to 167°F); IP 66, NEMA 4X Enclosure; Class 1 Div2/ATEX Zone II Certified; Integral and Remote Antennas Available



# Scalable Control Solutions

## Experion Solutions

Scalable solutions for diverse control requirements

### Experion LX

Experion LX is a proven, easy to use and purpose-built distributed control system.

Experion LX manages all continuous process control applications and optimizes batch and sequence-oriented applications.

Experion LX incorporates Honeywell's latest C300 controller technology and an innovative Series 8 I/O platform.

#### Benefits:

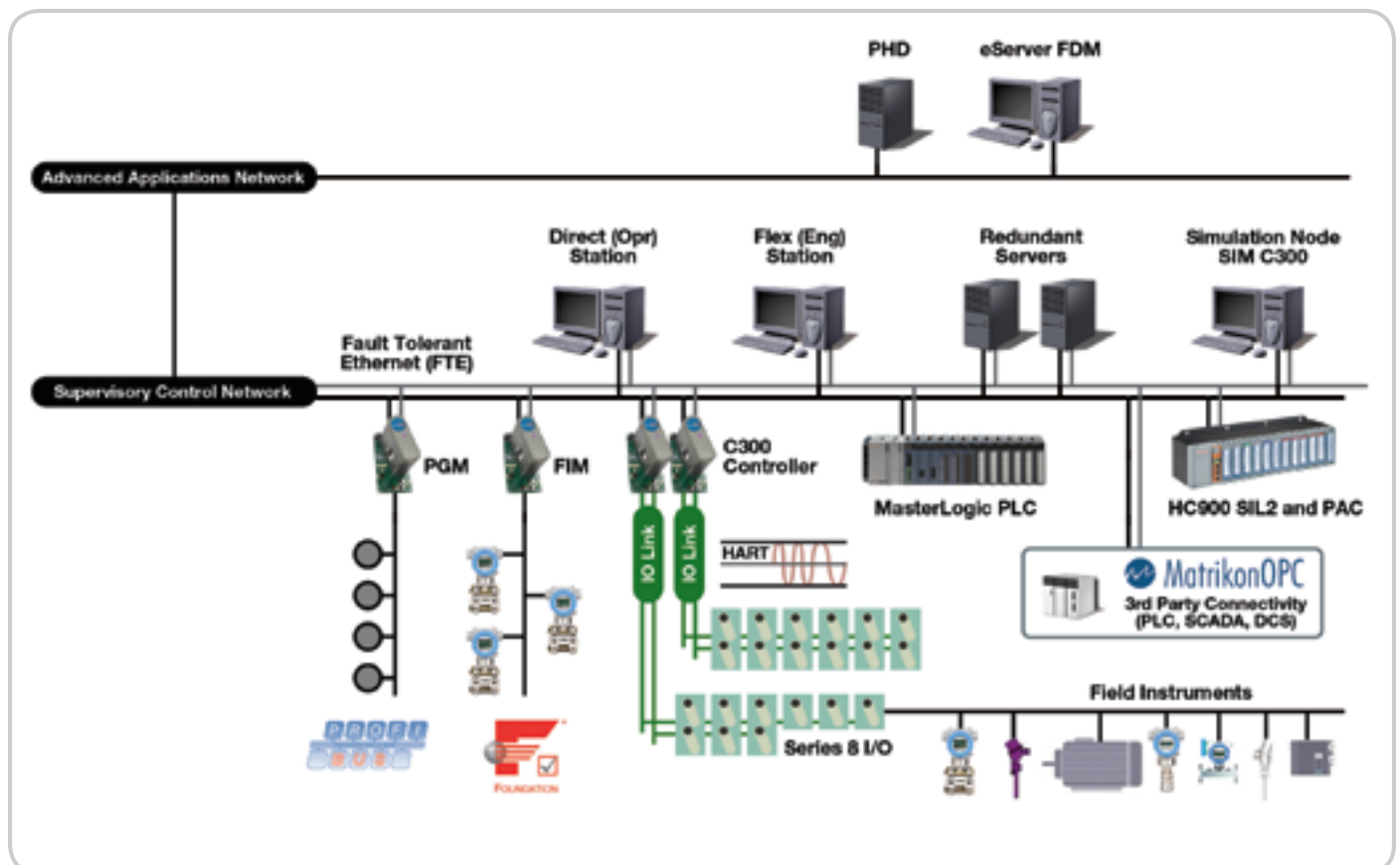
- Maximize plant uptime
- Improve plant reliability
- Optimize plant efficiency
- Boost plant performance and agility to respond to business changes
- Enhance operator effectiveness through alarm management and displays
- Communicate effortlessly with third-party devices and drives
- Drive down costs through a low total cost of ownership
- Ensure scalability and future expansion

### Experion HS SCADA Systems

Experion HS is a powerful software platform that incorporates innovative applications for human machine interface applications (HMI) and supervisory control and data acquisition (SCADA). Built upon the proven technologies of the Experion platform, Experion HS is an integrated and affordable solution for smaller unit operations.

#### Features:

- HMI including 300 pre-built displays
- On-board historian and trending
- Alarm and event subsystem
- Reports
- 10 dual-window client stations
- SCADA support for a wide variety of devices
- OPC Suite and open standard communication protocols
- eServer for casual browser view



# Scalable Control Solutions

## MasterLogic Programmable Logic Controllers

Greater versatility, easier engineering

The MasterLogic PLC is a powerful and scalable rack-based programmable logic controller. It can be installed in either a stand-alone or distributed architecture. A range of CPUs, power supplies and different rack sizes are available, to meet the requirements of a broad range of applications.



### Advanced Technology—Available at a Competitive Cost

MasterLogic's advanced technology enables higher speed processing and better control in applications of all types, particularly smaller unit operations. This compact and modular PLC offers all of the redundancy architecture options needed for most industrial operations—and at a competitive cost. A versatile family of I/O modules and networking options offers flexibility in how MasterLogic fits into an entire automation scheme.

### Available through Honeywell's expansive global organization, the MasterLogic PLC features:

- Powerful and versatile processors for high-speed applications (provides 42 ns/step, 7 MB program memory, 4 MB system memory, 2 MB data memory and 16 MB built-in flash memory for program and data backup)
- Full redundancy for CPU, power and network
- Compact pocket-size modules to optimize space
- IEC61131-3 standard programming with LD/SFC/ST/IL language options
- Vast library of standard function blocks and support for creating new or user-defined function blocks
- Over 50 types of I/O modules including High Speed Counter and Sequence-of-Event modules
- Open network protocols with field devices (Profibus DP, DeviceNet, HART, Modbus Ethernet and Serial) and user-defined frame option
- Open communication with external systems through 10/100Mbps fast Ethernet and serial RS232C/RS422
- Peer-to-peer communications between PLCs with either dedicated 100 Mbps Ethernet or fiber-optic
- Hot swapping, online editing, user-defined interrupt programs
- Integration with Experion PKS, Experion HS, or Experion LX architecture and SCADA systems
- Self-diagnostics including network diagnostics, system logs, auto-scan and system monitoring
- Program simulator to test programs offline without PLC/CPU

### Honeywell's Integrated Approach

MasterLogic is much more than just a better PLC; it comes from a company focused on the "system" of automation—not just the parts. Honeywell has always thought about automation problems in their entirety. Its holistic systems strategy, first developed in the 1970s with the introduction of the distributed control system (DCS), supports an integrated architecture with unified sensing, control, operations and information management.

The various elements of a plant automation system can be installed, started and operated together in a prepackaged manner without excessive tuning and adjustment by the implementation project engineer. Hardware and software components continue to operate with high reliability because they were engineered to be compatible. And when it's time to expand or upgrade the system, that task is made easy as well.

### The core aspects of Honeywell's systems include:

- Standard displays, faceplates and detail displays that provide a consistent look and feel to operators even when used with non-Honeywell controllers
- Embedding of MasterLogic alarms and events into the Experion HS alarm and event sub-system, including Sequence of Event information
- Critical functionality unifying the real-time, process-connected world of the controller with graphical user interface (GUI) and plant supervisory functions such as monitoring and alarm management
- Data management functions that derive from history collection and reporting

# Scalable Control Solutions

## HC900 Process & Safety System

Single flexible system for safety and process control

### HC900 Controller

The HC900 offers an integrated solution that provides a single flexible system for process control and safety with faster start-up time, common engineering tools, reduced training, simplified training and low cost of ownership. The combination of analog control loops, setpoint programs, function block configuration, data acquisition and an extensive assortment of predefined analog and digital blocks make the HC900 the ideal choice for thermal processing, water treatment, food & beverage processing, power generation, pharmaceutical, manufactured goods, semiconductor industries and other safety related applications such as burner management systems, combustion control, pipeline monitoring, spill prevention, and emergency shutdown.



The rack-based HC900 is a modular, scalable platform available in 3 rack sizes (4, 8 and 12 I/O slots) and three CPU performance choices to handle a wide range of automation requirements. The CPU options available for the HC900 Controller include ones for non-redundant applications, redundant networking and for both redundant CPU applications and redundant networking. To maximize installation flexibility, up to 4 remote I/O racks may be connected to a single controller to reduce wiring and installation costs.

The versatile HC900 Controller is the perfect solution for unit control requiring integrated loop and logic processing. It is also the ideal data acquisition package with up to 480 universal analog inputs, extensive math and free form calculations. Intuitive function block software allows you to quickly get up and running, saving you time and money. Ethernet Open Connectivity simplifies plant network integration. Redundant CPU's, Power Supplies and Networks maximize process uptime.

The HC900 consists of three components: a powerful controller (either process or safety) with modular I/O; a hardened operator interface with color display compact flash card (4GB); and intuitive configuration software.

The HC900 system is also available with similar hardware that is TÜV certified for safety applications.

### The HC900 Process and Safety Control System is:

- High Performance - enhances quality
- Easiest to Use and Engineer- improves productivity
- Low Total Cost of Ownership -maximizes profitability

#### HC900 Controller

Analog Inputs	Up to 480 universal analog inputs, 960 high level
Accuracy	±0.1% of span (field calibration to ±0.05% of span)
Analog Outputs	Up to 200; user specified span from 0 to 20 mA maximum, 12 bits, 0.1% Accuracy
Digital Inputs/Outputs	Up to 1920, contact DI, 24 Vdc DI/DO 120 Vac DI/DO, 240 Vac DI/DO, relay DO
Function Blocks	C70, C75 CPU-5000; C50 CPU-2000; C30 CPU-400
I/O Racks Per System	Up to 5 total
Control Loops	PID, on/off, cascade, ratio, %C, RH, dewpoint
Control Output Types	Current, time-proportioning, position proportioning, three-position step
Setpoint Programmers	50 segments each, 16 event outputs, profiles stored in controller
Setpoint Scheduler	50 segments, 8 ramp/soak outputs, 8 auxiliary outputs, 16 events, schedules stored in controller
Recipes	50 variables each
Communication	Ethernet 10BASE-T; Modbus/TCP protocol; up to 5 Ethernet hosts; up to 32 peer to peer controllers; Serial Modbus RTU, RS485 or RS232, Slave (up to 16) or master operation
Power Supply	120 Vac to 240 Vac or 24Vdc
Operating Temp.	0° to 60°C (0° to 140°F)
Humidity	10% RH to 90% RH, non-condensing
Rack Size	<b>4 Slot</b> 266.7 mm (10.5 in) <b>8 Slot</b> 419.1 mm (16.5 in) <b>12 Slot</b> 571.5 mm (22.5 in)

#### HC900 Control Designer Software

Configuration	Off-line, with run mode editing
Operating Environment	Windows Vista, XP SP2 Professional support, Windows™ 7
PC	Minimum-Pentium 1 GHz with 64MB of RAM (2.5 GHz with 512MB recommended) Screen resolution-SVGA (1024x768 recommended)
Cable	9-pin RS232 null modem cable to configuration port or Ethernet 10BASE-T
Modem Support	Monitor, upload, download configuration

#### Controller:

- Modular I/O design
- Multiloop PID Control
- Setpoint programmers, scheduler
- Process logic, timers, counters
- Process algorithms, calculations
- Universal analog inputs
- Stores setpoint profiles, recipes
- Remote Terminal Panels (RTP)
- Redundant CPU's, power supplies

#### Control Designer Software:

- Drag and drop soft wiring of function block objects
- Load configuration via Ethernet, serial communication modem
- Graphic hard copy records
- Load/upload, monitor configuration via modem
- Database export in CSV or TAB DELIMITED formats

# Scalable Control Solutions

## HC900 Process & Safety System

Single flexible system for safety and process control



### Operator Interface

The 900 Control Station operator interface from Honeywell compliments the HC900 Controller with a unique combination of predefined display features and custom display development tools to deliver ease of use and high flexibility in an efficient and affordable package. The color display and finger touch user interface enhances process monitoring while simplifying online controller changes. The Station Designer software used to configure the interface works in conjunction with the HC900 Process Controller configuration software to automatically build a Control Station database that exactly matches the unique, user configured, controller database. This highly integrated operation eliminates the time consuming task of assigning controller communication register addresses to the operator interface parameters used to build displays. The standard database of the Control Station allows all available controller tags to be imported without restriction or costly price adders, eliminating the risk of running out of tag resources in the middle of your project. The hardware of the 900 Control Station is designed to handle tough industrial environments with a full metal case design and water tight, type 4X, front bezel assembly. Hardware push buttons on the front panel supplement touch screen software buttons for common interface tasks such as user log-off, display last screen and main menu access.

The 900 Control Station is available with either a 10.4 inch or 15 inch display size. Both models are configured using Station Designer PC configuration software.

Operator Interface	Model 900CS10-00	Model 900CS15-00
<b>Display</b>	Size: 264 mm (10.4 in) Pixels: 640 X 480; Color LCD	381 mm (15 in) Pixels: 1024 X 768; Color LCD
<b>Data Logging</b>	Media: Volatile RAM memory, optional non-volatile flash card memory or removable USB memory module, Secure Data Archiving; Data Types: Process history, alarms, events, diagnostics, user changes; Export format: CSV	Media: Volatile RAM memory, optional non-volatile flash card memory or removable USB memory module, Secure Data Archiving; Data Types: Process history, alarms, events, diagnostics, user changes; Export format: CSV
<b>Power Supply</b>	+24 VDC $\pm$ 20% @ 29 W max. Requires Class 2 or SELV rated power supply. Front panel LED indication of power on	+24 VDC $\pm$ 20% @ 46 W max. Without options. Requires Class 2 or SELV rated power supply. Front panel LED indication of power on
<b>Safety</b>	ANSI/UL 61010-1 – 2005, Second Edition. General Purpose (Ordinary Location) Safety; UL evaluated to CSA C22.2 No. 61010-1-2004- Second Edition. General; Purpose (Ordinary Location) Safety; UL, CSA and FM Class I, Div 2 Groups A,B,C and D - Hazardous (Classified; Location Safety for USA and Canada	ANSI/UL 61010-1 – 2005, Second Edition. General Purpose (Ordinary Location) Safety; UL evaluated to CSA C22.2 No. 61010-1-2004- Second Edition; General Purpose (Ordinary Location) Safety; UL, CSA and FM Class I, Div 2 Groups A,B,C and D - Hazardous (Classified; Location Safety for USA and Canada
<b>Operating Temperature</b>	Operating Temperature Range: 0 to 50°C (32 to 122°F) Storage Temperature Range: -20 to 70°C (-4 to 158°F)	Operating Temperature Range: 0 to 50°C (32 to 122°F) Storage Temperature Range: -20 to 70 °C (-4 to 158°F)
<b>Humidity</b>	Operating and Storage Humidity: 80% maximum relative humidity (non-condensing) from 0 to 50°C.	Operating and Storage Humidity: 80% maximum relative humidity (non-condensing) from 0 to 50°C.

### Communications:

- Modbus/TCP Protocol
- USB Ports: Adhere to USB specification 2.0
- RS232 Serial Ports (RJ12 connectors)
- RS485 Comm. Port (RJ45 connector)
- Ethernet Port: (RJ45 connector)–wired as a NIC (Network Interface Card)
- 10BASE-T/100BASE-TX
- Redundant Networks

### Operator Interface:

- Fully manage HC900 controller function blocks such as PID, setpoint programmers, etc.
- Load/monitor setpoint programs, recipes
- View analog and digital status
- View bar graph groups
- View trends
- View alarm and event status
- Initiate operator push-button actions
- Expandable memory with Flash Memory socket for record keeping & configuration transfer
- Configuration stored in non-volatile memory for secure operation
- Integrate HC900 controller alarms/events or build them into the interface
- Emulator
- Multilingual (5 languages including English, German, French, Spanish and Italian)
- Batch Reporting



# Connectivity Solutions

## MatrikonOPC

Secure, reliable open data connectivity

MatrikonOPC offers the industry's most extensive portfolio of OPC connectivity products along with unmatched global domain expertise. Its solutions integrate Honeywell's products such as the HC900 Controller, MasterLogic PLC, single loop controllers, control systems, actuators and analyzers with third-party SCADA, historians and human machine interfaces (HMIs) to provide secure, reliable open data connectivity.

**The following MatrikonOPC products are available with Honeywell products:**

### Universal PLC Server

The MatrikonOPC Universal PLC Server is a single OPC Server that provides connectivity to multiple devices, protocols and APIs. MatrikonOPC Universal PLC Server offers a wide range of plug-ins to support the most popular PLC protocols.

### OPC Server for Modbus

The Modbus OPC Server provides secure and reliable real-time data access between all modbus-capable devices to OPC-enabled applications such as historians, HMIs and SCADA systems, etc.

### OPC Redundancy Broker

OPC Redundancy Broker (ORB) easily enables implementing redundancy in systems that take advantage of OPC technology, such as Honeywell's Experion® HS.

### Easy OPC Trender

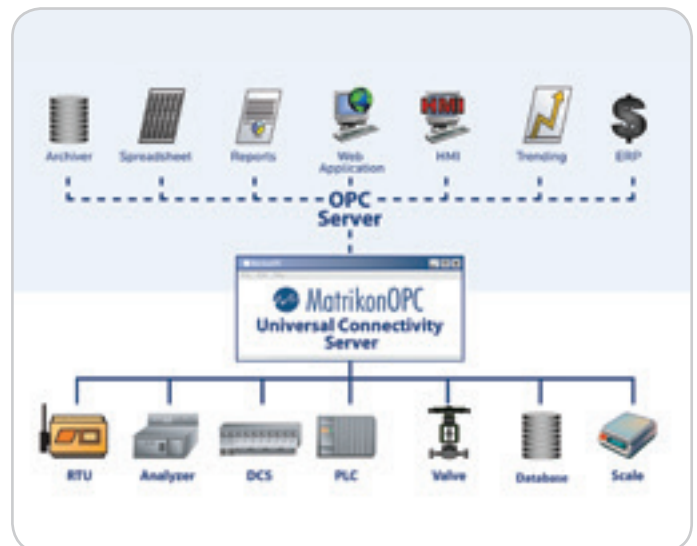
Easy OPC Trender is an intuitive and powerful OPC Trending Client. With OPC-HDA, you can connect to any process historian data source.

### OPC Security Gateway

MatrikonOPC Security Gateway secures all real-time OPC architectures. Unlike OPC solutions that rely only on DCOM security, Security Gateway controls who can browse, add, read and/or write to a tag on a per-user-per-tag basis on any OPC DA or HDA server.

### OPC Tunneller

OPC Tunneller provides an easy, reliable and secure way to communicate between networked computers. OPC Tunneller even allows for user configurable time-outs, thus giving you complete control.



### OPC Data Manager

OPC Data Manager (ODM) is a software application that transfers data from one OPC server to another. Use ODM when you need to share, map, and bridge OPC data between two or more control systems (e.g. PLC and a DCS). With ODM this connectivity can be accomplished with standard, off-the-shelf software.

### OPC Excel Reporter

OPC Excel Reporter is an OPC Client for Excel that transforms Excel into a reporting tool for your process and equipment data. Connect to any real-time (OPC DA) or historical (OPC-HDA) data source. With its simple and easy to use interface, Excel sheets and cells can be linked to specific I/O point(s) in the PLC in a matter of seconds.

### MicroHistorian

OPC Micro Historian is ideal for storing data from individual PLCs, in small plants, or for simple processes for analysis and reporting.

# Remote Terminal Unit

## RTU2020

Realize the production potential of your oil & gas assets



The Honeywell RTU2020 Remote Terminal Unit (RTU) is a modular, powerful and scalable controller capable of all remote automation & control applications. When combined with Experion® LX and its radically simplified SCADA configuration with superior operator experience, it solves the most challenging remote automation requirements for the oil & gas industry.

With our modern RTU2020 Remote Terminal Unit, you have perfect 20/20 vision to realize the production potential of your oil & gas assets through safe, reliable and efficient remote monitoring, diagnosis and asset management, while ensuring low total cost of ownership.

### The Lowest Power Consumption

The RTU2020 has one of the lowest power consumptions on the market at a typical tiny 1.8 Watts, even when using HART. When HART is required, other RTUs require additional hardware, consuming even more power, whereas RTU2020 has HART onboard. Even in tropical and desert environments, either minimal or no cooling is required.

### Efficient Wiring and Assembly

RTU2020 comes with removable field terminals, allowing the installer to hold the terminals in their hand for wiring even with gloves on. In addition, the terminals are printed with the I/O type and number giving the installer positive identification. Combined, this saves upfront installation cost and reduces wiring errors.

### High Performance RTU with HART enabled Onboard I/O

With a modern dual core 667MHz processor, RTU2020 has the power for today's applications and spare reserve to meet tomorrow's needs. Importantly, by having built-in HART, RTU2020 has no requirement for separate expensive and power consuming HART I/O modules or third party components.

### Key Features

- Stand-alone lowest power consumption in its category at a typical 1.8W
- Temperature range -40 to 75°C (-40 to 167°F). Up to 75°C, not 70°C like other units
- High reliability with well designed thermal paths
- HART enabled onboard I/O. No extra hardware required. Digital HART data & diagnostics are available locally for use in RTU program & remote alarming
- HART IP allowing remote asset management of HART devices via Honeywell's Field Device Manager Express
- Efficient wiring & configuration saving installation and maintenance time
- Modern, powerful CPU for now & into the future
- Transient suppression on every I/O channel & every communication
- A powerful IEC 61131-3 programming environment
- Liquids & gas calculations in the same controller
- Flexible communication options for uplink & downlink
- Industry standard protocols of Modbus & DNP3 both as master and slave
- Secure communications with authentication & encryption
- Data logging on board & optionally on local SD card
- Hazardous area certified

### The Value of HART

RTU2020 helps eliminate maintenance trips to the field with robust data logging, good sub-system communications with local devices and smart device integration with HART to enable better fault modeling, both direct on the RTUs and at central locations.

### Endures Tough Environments

RTU2020 has been designed to withstand the toughest environments, with an operating temperature range of -40 to 75°C in humidity of 5% to 95%. RTU2020 has conformal coating to G3 and is hazardous area certified.

### Flexible Communication Ports, Standard Protocols

RTUs need to efficiently manage unreliable, low bandwidth networks and support remote, redundant and master/slave communication scenarios to provide data buffering and history backfill.

### Robust Data Logging Ensures Data Availability

RTU2020 comes with data logging capabilities to record values to data files in flash memory or the onboard SD card, (optional), supporting up to a massive 32GB of data. This ensures important data is never lost and is available for future analysis.

# Actuators

## HercuLine

Smart design for lower cost of ownership



HercuLine Electric Actuators	HercuLine 2000	HercuLine 2001 / HercuLine 2002	HercuLine 10260A / HercuLine 10260S
<b>Product Description</b>	Low torque electric actuator	Low torque electric actuator	Medium torque industrial electric actuator
<b>Torque</b>	50 to 400 in-lb (6 to 45 N-M)	50 to 400 in-lb (6 to 45 N-M)	10 to 300 lb-ft (14 to 400 N-M)
<b>Stroke/Speed</b>	90° to 150°/6 to 75 sec	90° to 150°/7.5 to 120 sec	90°/10/20/40/60 sec
<b>Input Signals</b>	Floating, Pos. prop., Open/Close	1-5 Vdc, 4 to 20 mA	0/1-5 Vdc, 0/4-20 mA, Floating, Pos. prop., Open/Close
<b>Position Feedback</b>	1000 ohms potentiometer	0/1-5 Vdc, 0-16 Vdc, 0/4-20 mA, SW emulation	0/1-5 Vdc, 0-16 Vdc, 0/4-20 mA, SW emulation 1000 ohms potentiometer
<b>Position Sensing</b>	1000 ohms potentiometer	2001: slidewire 2002: contactless	Contactless
<b>Environmental</b>	-40° to 85°C (-40° to 185°F)	-40° to 75°C (-40° to 170°F)	-30° to 75°C (-20° to 170°F)
<b>Duty Cycle</b>	Continuous	Continuous	Continuous
<b>Repeatability</b>	N/A	0.2% of 90° span	0.2% span
<b>Dead-Band</b>	N/A	Adj. 2% to 5% span	Adj. 0.2% to 5% span
<b>Local Auto/Man Switch</b>	Optional	Optional	Optional
<b>Local Keypad/Display</b>	N/A	Optional	10260S: Optional
<b>RS485 Modbus Comms.</b>	N/A	Yes	10260S: Yes

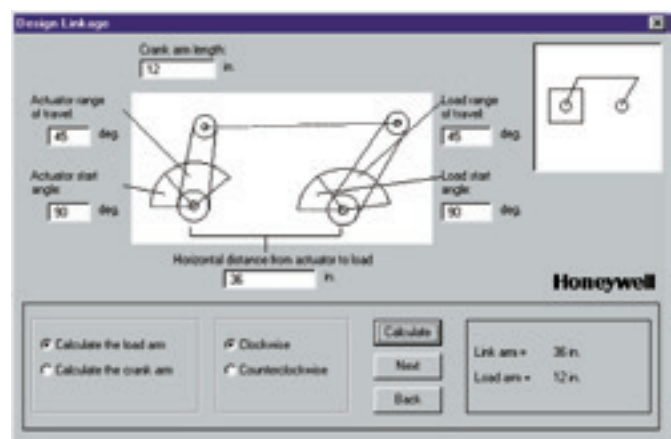
### HercuLine Electric Actuators

HercuLine Electric Actuators are engineered for exceptional reliability, accurate positioning, and low maintenance. Designed for very precise positioning of dampers and quarter-turn valves, they perform especially well in extremely demanding environments requiring continuous duty, high reliability and low maintenance. With non-contact sensing, the maintenance problems and unexpected shutdowns associated with slidewires and potentiometer wear are eliminated.

### HercuLine Smart Actuators

Honeywell's new actuators incorporate all of the quality and reliability features of the HercuLine actuators with the added benefits of microprocessor-based electronics. These benefits make it easier to install, set up and commission the actuator, while allowing you to monitor the health parameters for proactive maintenance planning.

- RS485/Modbus communications for remote access
- Programmable: Alarm and relay outputs; Characterization, failsafe functions, dead-band, and filtering; Direction of rotation
- Diagnostic Parameters: Maximum Hi and Lo temperature; Stall and accumulated stall time; Total travel



### Honeywell Actuator Linkage Software

Helps you size, select and install your Honeywell actuator. The software lets you choose the actuator and design the linkage that best fits your application.

### HercuLine PC Software

- Lowers ownership cost
- Use your PC for calibration, configuration and maintenance data
- Eliminates local display and keypad



### Versatile and Modular Field Products

Scan this QR Code to see how Honeywell's portfolio of field measurement and control products enable you to manage your plant assets and optimize your entire enterprise with solutions that are easy to configure, operate and maintain.

*Experion® is a registered trademark, and OneWireless™ is a trademark of Honeywell International, Inc*

*\* All other trademarks are the property of their respective owners.*

### For More Information

To learn more about Honeywell field products, visit [www.honeywellprocess.com](http://www.honeywellprocess.com) or contact your Honeywell account manager.

### Automation & Control Solutions

Honeywell Process Solutions  
Honeywell

512 Virginia Drive  
Fort Washington, PA 19034 USA

Honeywell House, Arlington Business Park  
Bracknell, Berkshire, England RG12 1EB

17 Changi Business Park Central 1  
Singapore 486073

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



## Honeywell Global Services and Support

Maximize the return on your technology

### Global Service and Support Team

Count on Honeywell to help you streamline startup and optimize the lifecycle of your automation investment. Honeywell's global service and support team will help you maximize the return on your technology investment through personalized service and assistance throughout the life of your installation.

- Achieve faster and smoother startups
- Reduce engineering, procurement, installation and commissioning costs by at least 10%
- Maintain continuity despite any turnover in your organization's personnel
- Maximize payback from your asset investments
- Avoid unplanned downtime

### Service Professionals

Our service professionals are experts in their field and have the necessary global certifications to safely install and maintain customers' equipment.

### We offer the following services at each lifecycle stage:

#### Before Installation:

- Site survey
- Consulting
- Project planning
- Function design specification
- Product selection

#### During Installation:

- Hardware/Software supply
- Supervision of installation
- Specific application development
- System configuration and integration

#### After Installation:

- Commissioning
- Acceptance testing
- Training
- System optimization
- Remote and onsite service programs, extended warranty, help desk and emergency support

The result is streamlined startup operations and optimized safety, reliability, efficiency and sustainability through the life of the equipment.

# Honeywell