PROCESS INSTRUMENTATION PROCESS AUTOMATION REMOTE CONDITION MONITORING

Honeywell

INCREASE YOUR PERFORMANCE

Honeywell's complete portfolio of automation solutions is complemented by optimal software solutions with open interfaces for data access, thus offering you the right solution for you across all levels of the automation pyramid.

From the sensor to the control system to the guidance system – we support you in improving quality and productivity and in reducing your overall costs with predictive maintenance solutions.

Local or global. We offer the complete range.

EVERYTHING OUT ONE HAND

Proven technology, precise measurements, easy to use

pressure measurement
Honeywell's SmartLine® modular pressure transmitters offer differential, absolute, gauge, sealed, flanged and multivariable solutions, as well as SIL certifications and an industry-leading 15-year warranty.

multivariable measurement
SmartLine multivariable transmitters measure static pressure, differential pressure and process temperature with minimal process intervention and provide reliable, accurate and stable mass flow measurements. Our multivariable measurement systems are compatible with all flow meters and offer superior performance - for accurate, reliable measurements, even in low-flow applications.

temperature measurement
Honeywell's SmartLine temperature transmitters are available in three classes to provide the best price/performance ratio for every application. They are available in OEM packages and as ready-to-install assemblies with globally recognized certifications, communication and diagnostic functions.

level measurement
The SmartLine level transmitters ensure reliable measurement of levels and

Separating layers, even under dynamic conditions, in every process.

With the SmartLine
Application validation tool eliminates model selection errors and reduces commissioning time with fully pre-configured transmitters on site.

flow meters
VersaFlow stands for a comprehensive portfolio of proven flow meters for every measuring task.

They offer safe, reliable and efficient solutions with the highest accuracy for flow measurement, with easy configuration and operation.

analytical technology
Honeywell offers a wide range of modern sensors and instruments for measuring pH, ORP, conductivity and dissolved oxygen.

The unique analysis solutions ensure that operational processes run smoothly, efficiently and safely.

controllers and indicators The digital single and dual loop controllers and indicators provide precise control and display of process variables and a wide range of optional features. With its complete range, Honeywell offers a versatile solution for a wide range of applications. All Honeywell controllers and indicators are extremely reliable, easy

configurable, flexible and versatile

Manual writers and digital recorders
Honeywell has a comprehensive portfolio to meet your data recording and

data collection needs completely met. Choose your format: pie chart recorder or paperless recorder for display, storage

and manage your process data. In addition, Honeywell's powerful software suite offers analysis and networking functions as well as real-time archiving.

Modular PLC and DCS systems The wide range of flexible automation and
Control solutions meet the requirements of all industries, such as Chemicals, Food & Beverages, Life Science, Water/Waste water and Primaries.

The ControlEdge™ HC900
Process automation controller is an ideal control solution for user requirements that are

thermal control in boilers, furnaces, ovens and dryers to equipment processing in pharmaceutical, chemical, biofuel, pilot plant and other applications

ControlEdge™ PLC combined with Experion® reduces integration costs for balanced plant operations, minimizes downtime, reduces risk through integrated cybersecurity, and lowers total cost of ownership through an extended system lifecycle.

Versatilis EHM
The Honeywell Versatilis™ transmitter uses the long-range, low-power LoRaWAN® protocol to efficiently transmit device, environmental and gaseous emission data over long

areas. It also supports BLE communication for fast and reliable configuration and troubleshooting.

The transmitters combine best-in-class MEMS (micro-electromechanical system) based sensor technology with a low-power design, open and secure wireless communication technologies and user-friendly

Installation and operation.

Honeywell Versatilis™ transmitters provide capabilities for condition-based monitoring of rotating equipment, including pumps, motors, compressors, fans, blowers and gearboxes. Comprehensive features help customers reduce costs, improve safety, increase energy efficiency and comply with environmental regulations:

- Digitization of assets, processes and environmental conditions
- Automation of field data collection
- Reduction of unplanned downtime through predictive maintenance
- Monitoring of gaseous and diffuse emissions

INTELLIGENT PRESSURE TRANSDUCER

SmartLine pressure transmitter

PRECISE, ROBUST AND THANKS TO MODULAR DESIGN: LOW TOTAL COST OF OWNERSHIP

SmartLine® pressure transmitter
Honeywell's SmartLine pressure transmitters set the standard for overall performance in complex process environments with their modularity and robustness. With better performance, modular design, enhanced graphic display and best-in-class integration capabilities when used with the Experion® control system, Honeywell lowers project costs and shortens commissioning times, prevents unplanned downtime, contributes to improved product quality, reduces the need to stock spare parts and shortens repair times. SmartLine pressure transmitters have two performance levels for measuring absolute pressure, differential pressure, gauge pressure, with diaphragm seal or flanged and multivariable transmitters. Special features of the SmartLine platform:

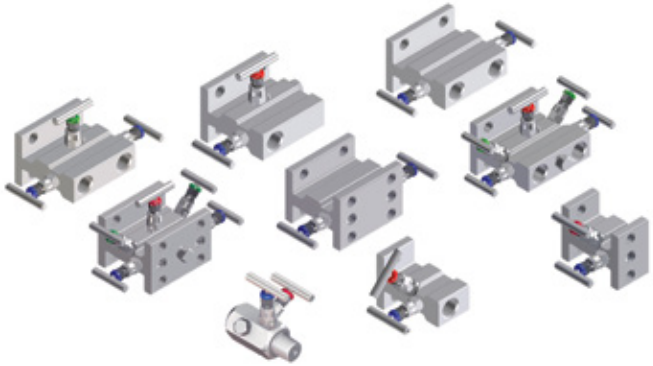
- Universal terminals
- Field replaceable modules
- Dual-Seal compliance
- Compensation of temperature and static pressure
- The SmartLine connection advantage offers unique integration features such as tamper alarm, transmitter messaging and maintenance mode indication.
- Full compliance with SIL2/SIL3 requirements

ST800 pressure transmitter
The most powerful offer includes:

- Suitable for critical process control loops, legal for trade applications and SIL2 safety
- Market-leading stability of up to 0.01% of span per year for 10 years
- Standard accuracy up to 0.0375% of the measuring span, optionally up to 0.025%
- Extensive, integrated diagnostic functions
- Response time of 80 ms
- Reduction range up to 400:1
- 15-year warranty

ST700 pressure transmitter Best price/performance ratio.

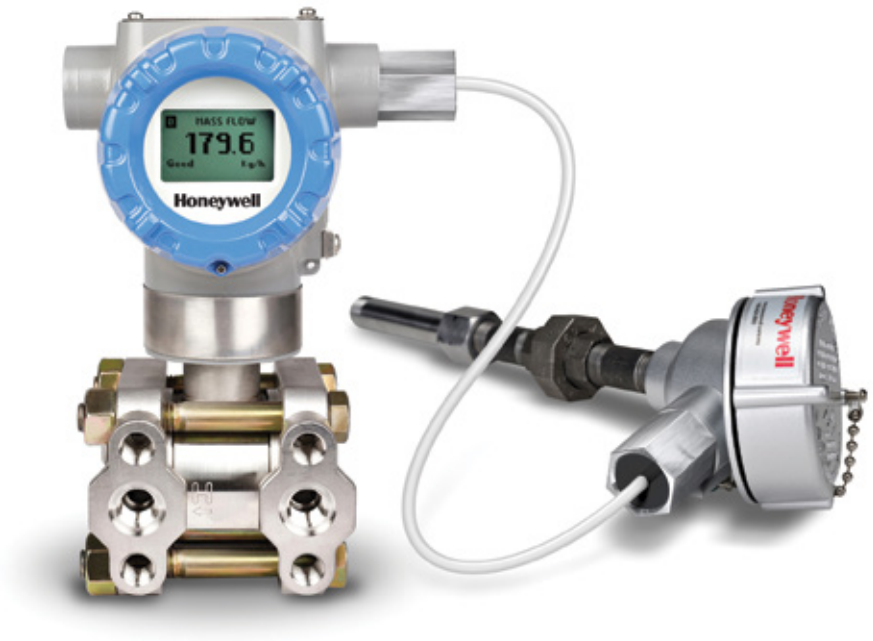
- Suitable for monitoring critical process control loops and SIL2 safety
- Stability up to 0.02% of span per year for 5 years
- Accuracy up to 0.05% of the measuring range
- Measuring range up to 100:1



SmartLine accessories
Honeywell SmartLine pressure accessories include a comprehensive range of manifolds in various configurations for pressure, differential pressure and level measurement. Honeywell manifolds are designed with built-in safety mechanisms to ensure safe, reliable and efficient operation and easy maintenance of SmartLine pressure transmitters. These include shut-off and bleed valve manifolds, 2, 3 and 5 valve manifolds. They are available individually or as an integrated, tested package with the SmartLine pressure transmitter, reducing the total cost of ownership for users, manufacturers and EPC contractors.

INTELLIGENT MULTIVARIABLE PRESSURE TRANSDUCER

SmartLine Multivariable Pressure Transmitter



DISCOVER THE SMART POWER OF A 3-IN-1 SOLUTION: SIMPLE, ACCURATE AND RELIABLE

SmartLine SMV800 multivariable measuring transducer The SmartLine SMV800 multivariable transmitter can calculate the compensated mass or volume flow rate as a fourth process variable. The meters are also available as bare housings and are compatible with third-party and OEM measurement solutions. The simple modularity, a universal input for the process temperature and a modern display with interference-free measurement
mean better availability, up to 70% reduction in spare parts inventories and up to 30% lower maintenance costs.
Through its compatibility with the Experion® control system and HART7, the device offers the highest level of compatibility assurance and integration capability.

The SmartLine Multivariable transmitter uses the proven SmartLine technology to measure three different process variables with combined

Sensor technologies for measuring static pressure, differential pressure and process temperature in air, gases, vapors and liquids with minimal process intervention, low total cost of ownership and outstanding performance for accurate and
fail-safe flow measurements.

Special features:

- For measuring the flow of any liquid, gas, vapor or slurry for which a primary flow element already exists,

  to perform a differential measurement.
- OEM multivariable pressure transmitters – measurement of differential pressure and static pressure (relative or absolute pressure)
- Accuracy – up to 0.04% for differential pressure
- Accuracy – up to 0.2°C for temperature.
- Accuracy – up to 0.6% for flow
- Integrated pressure and temperature compensation
- Performance range up to 400:1
- Compensated flow response time up to 2x/sec.
- Universal transmitter terminals
- Simple modular design
- Universal process temperature input
- HART7/DE protocol support

With the new SmartLine Multivariable Transmitter SMV800, Honeywell's SmartLine pressure transmitter family now offers a complete range of flanged pressure transmitters and transmitters with diaphragm seals for absolute pressure, differential pressure and valve pressure for a wide variety of applications.

INTELLIGENT TEMPERATURE TRANSMITTER

SmartLine temperature transmitter and STT 3000 series

PROVEN PRECISION EQUIPMENT

SmartLine STT850 and STT750 temperature transmitters
SmartLine STT850 and STT750 temperature transmitters are the most reliable and robust temperature transmitters on the market, featuring a dual chamber housing and intuitive diagnostics for the transmitter and sensor. Dual inputs and digital outputs minimize the number of devices required for monitoring and switching, reducing the cost of the initial investment*. SmartLine temperature transmitters have outstanding stability with a time shift of 0.01% of the URL per year for up to ten years. This superior performance reduces the calibration frequency and regular maintenance requirements.

Like all SmartLine transmitters, the SmartLine temperature transmitters have a modular
Design, universal terminals, a modern display and local configuration options.

As part of the SmartLine Connection Advantage, the STT850 supports transmitter messaging, maintenance mode indication, and a unique tamper reporting feature.

STT170
- Affordable solution with 4-20mA communication
- Universally computer programmable, for RTDs and thermocouples
- Available as a single-chamber housing
- The ultra-compact size fits into the smallest DIN B sensor head housing
- FF DTM support

STT800 measuring group
The ready-to-install temperature measuring system is supplied with sensor heads, sensors, temperature measuring nozzles and process connections
It is available for delivery at short notice including individual Calibration and approvals.

The package is available in three versions:
- Rigid measuring probe
- Temperature measuring nozzle with thread and socket
- Temperature measuring nozzle with bore and flange
- All STT800 systems are approved according to ATEX, CSA and FM

STT800
measuring group

SmartLine STT650 DIN Temperature transmitter for rail mounting TS35
The SmartLine STT650 DIN rail mount temperature transmitter offers high measurement accuracy, stability and reliability for a wide range of processes and ambient temperatures. Designed for extreme performance, the STT650 transmitter easily meets the highest requirements for temperature measurement applications. With absolute measurement accuracy including the influence of ambient temperature in harsh industrial environments, the STT650 temperature transmitter can replace almost any transmitter available today. Another great advantage is the two-channel option combined with the compact design, which saves 40% of the space required in the control cabinet and therefore storage costs and inventory.

* STT850 only

INTELLIGENT
LEVEL TRANSDUCER

| SmartLine Level Transmitter - Guided Microwave

A NEW STANDARD FOR TOTAL PERFORMANCE AND USER COMFORT

Smartline SLG700 Radar
- level transmitter
The SmartLine level transmitter offers a new user experience, from using a new online configuration tool to profiling a specific tank application to installing and commissioning the SmartLine level transmitter.

With the SmartLine
Application Validation Tool prevents costly errors from the start by matching the SmartLine level transmitter to the specified process tank. Since the tool interfaces with Honeywell's order processing system, the transmitter is calibrated according to your

specifications manufactured and delivered.

The SmartLine
Level transmitter offers:
- Outstanding performance and reliability
- Unique features reduce total cost of ownership
- Efficient integration into the PLC

Honeywell's SmartLine level transmitter features an intuitive and intelligent online selection tool for optimal device configuration for the desired application. The following benefits of the SmartLine application validation tool result in the lowest total cost of ownership.

- Use the tool's built-in logic and integration capabilities to simplify the selection process and order the ideal measuring device for your desired application.
- Document your selection process and pass it on when ordering. Receive your device fully pre-configured and ready for use for your application to shorten commissioning time. The SmartLine SLG700 level transmitter is based

- on an innovative, wave-guided radar technology that enables reliable and efficient level control in almost all industrial
  The meter sets new standards in terms of overall performance and offers the following intelligent

- Avoiding poor production quality and faulty process deviations: fault immunity and dynamic algorithms

  for suppressing interference
  signals for highly complex tanks
  and variable processes
- Maximize the use of existing tank facilities while reducing costs – optimizing the block distance improves the accuracy of the installation in small tanks

- Avoid measurement and production deviations under highly dynamic
  process conditions/changes
  - improved firmware with modern correlation algorithm for dynamic compensation
- Increase the amount of relevant information using intuitive and advanced DMT technology.

Honeywell transmitters are known for their unparalleled performance and accuracy:
- Accuracy: ±3mm or 0.03% of the measuring distance
- Repeatability: ±1 mm
- Pressure range: -1 bar to 400 bar (-14 psi to 5801 psi)
- Temperature range: -60 to 450° C (-76 to 842° F)
- All process connections:
  - Flanges from DN40 and 1-1/2 inch
  - NPT thread from 3/4 inch
- Wetted materials for corrosive environments: Alloy
- C-276 and SS316
- Resolution: 1 mm
- 2-wire, 4-20 mA current loop
- HART, Foundation Fieldbus output options
- Write protection for transmitter configuration
- Unprecedented local display capabilities
- Extensive, integrated diagnostic functions
- Full compliance with SIL 2/3 requirements as standard

INTELLIGENT
LEVEL TRANSDUCER

SmartLine Level Transmitter - Pulse Wave Radar Non-contact level measurement - free radiating Stable level measurement, which leads to lower

Total Cost of ownership contributes

NON-CONTACT LEVEL MEASUREMENT WITH SLN700 – RADAR LEVEL TRANSMITTER

The universal radar solution The SmartLine® non-contact radar level transmitter utilizes the latest 80 GHz technology, modular design, advanced display and intelligent clutter detection algorithms to deliver highly accurate level measurements and best-in-class performance.

The non-contact design can measure a wide range of applications in level measurement of liquids and solids with the specified pressure and temperature range. It can be used on process tanks, storage tanks, mobile vessels and bulk silos. With this state of the art technology, the level transmitter is able to measure media with a dielectric constant of 1.4 or more.

The integrated and encapsulated antenna designs enable use even in tight tank installations and still allow

Level measurement for liquids up to 30 m and solids up to 120 m.

highlights

The SmartLine® non-contact radar level transmitter utilizes the latest 80 GHz technology, modular design, advanced display and intelligent clutter detection algorithms to deliver highly accurate level measurements and best-in-class performance.

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industries

- Chemistry
- Food & Beverages
- Iron, Steel & Metal
- Minerals & Mining
- Oil & Gas
- Petrochemicals
- Paper & Pulp
- Water & Wastewater

applications

- Tanks with agitators
- Process tanks
- Storage tanks

Figure 1 – SLN700 Non-Contact Radar level transmitter

FLOW MEASUREMENT

VersaFlow flow meter
Accurate and reliable flow measurement for the most difficult applications

				
VersaFlow	**Electromagnetic flow meter**	**Coriolis mass flowmeter**	**vortex flow meter**	**ultrasonic clamp-on flow meter**
Advantages	Proven technology Extended application possibilities A wide variety of process conditions Easy installation and operation Different sizes for different requirements	Improved security A variety of flow applications Lower maintenance costs and problems Improved performance Reduced maintenance time and - cost	Lower installation costs and improved performance Robust, durable design for extreme application conditions Easy to install and manage monitoring multiple parameters	Lower installation costs and improved performance Low service and maintenance costs Non-invasive measurement
performance features	Acid and alkali resistant - for up to 250,000 operating units Conductivity up to 1µS/cm Temperature up to 180° C (356° F) Easy selection, maintenance-free Available sizes: 0.1 to 80 inches (DN 2.5 - 3000) Different electrode materials Standard insulation: PTFE, PFA, ETFE, hard rubber and polyurethane	Maintaining the pressure around the sensor Pressure-resistant jacket - up to 100 bar (1450 psi) Flow rate 0.3 to 430,000 kg/h Easy to empty and clean Excellent zero point stability Fast signal processing even with changes in product, temperature and density Modular electronics concept and data redundancy – sensor and plug-and-play electronics are easily interchangeable	Two-wire device with integrated pressure and temperature compensation Wear-free, fully welded steel construction with high corrosion, pressure and temperature resistance Optimum process reliability thanks to ISP (intelligent signal processing for stable measured values, no external signal processing) Ready to use - plug-and-play solution Maintenance-free sensor design Pressure and temperature can be accessed via HART	Minimization of uncertainties Simple sensor installation Improved reliability Installation Assistant Minimal maintenance effort complete system Efficient relubrication system Mobile configuration available
applications	Suitable for all ladder applications From pure liquids to slurries to high solids pastes Abrasion, chemical and vacuum resistant Suitable for high temperatures Applications requiring calibration	Thick or shear-sensitive products Products with low flow velocity In homogeneous mixtures Products containing solids or gases flow and purity measurement measurement of density, temperature and concentration Applications requiring calibration	Measurements in superheated steam and saturated steam steam boiler monitoring monitoring of compressor performance Measuring consumption in compressed air systems measurement of industrial gas consumption SIP and CIP processes in the food & beverage and pharmaceutical industries Measurements in conductive and non-conductive liquids	Chemical additives drinking water General Process Control Treated Water Many refined hydrocarbons flow measurements in hygiene applications Deionized and demineralized water cooling water/district heating water
industries				
Chemistry	-	-	-	-
petrochemical industry	–	-	–	-
Food & drinks	-	-	–	-
Minerals & Mining	-	-	–	–
Oil & Gas	-	-	-	-
Pharmaceutical industry	-	-	–	-
energy plants	-	-	-	-
Paper & Pulp	-	-	-	–
Water	-	-	-	-
wastewater	-	-	–	–
Iron, Steel & Metal	–	–	-	–
automotive industry	–	–	-	–

HONEYWELL VERSATILISTRANSMITTER

Remote Condition Monitoring

MAXIMUM AVAILABILITY, RELIABILITY AND PERFORMANCE

Honeywell Versatilis™ transmitters open new possibilities for condition-based monitoring of rotating equipment, including pumps, motors, compressors, fans, blowers and gearboxes.

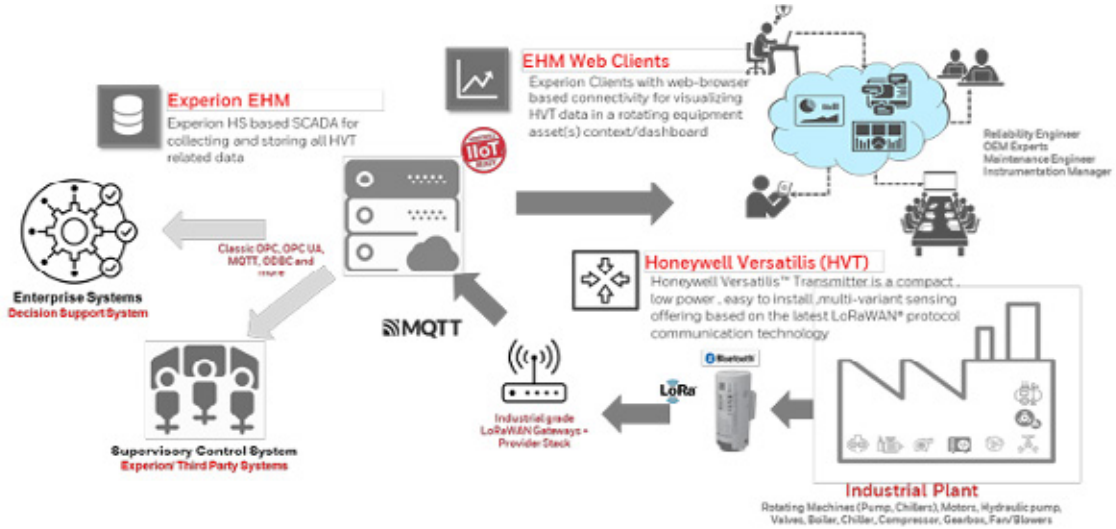
By 2030, condition-based maintenance could add $300-530 million in value to the manufacturing industry. To achieve this, technology providers must improve their capabilities to simplify installation, improve interoperability and cybersecurity, and keep wireless infrastructure costs as low as possible.

What is Honeywell Versatilis?
The Honeywell Versatilis™ transmitter uses the long-range, low-power LoRaWAN® radio-based protocol to efficiently transmit device, environmental, and gaseous emissions data over large areas. It also supports BLE communication for fast and reliable configuration and troubleshooting.

How does it work?
The transmitters combine first-class MEMS-based sensor technology (microelectromechanical system) with a power-saving
Design, open and secure wireless communication technologies as well as user-friendly installation and operation.

What opportunities does this create?
Honeywell Versatilis™ transmitters provide condition monitoring capabilities for rotating equipment, including pumps, motors, compressors, fans, blowers and gearboxes. Comprehensive features help customers reduce costs, improve safety, increase energy efficiency and comply with environmental regulations:

- Digitization of assets, processes and environmental conditions
- Automation of field data collection
- Reduction of unplanned downtime through predictive maintenance
- Monitoring of gaseous and diffuse emissions



HONEYWELL
VERSATILISLIFECYCLE SUITE

CONFIGURATOR – LIFECYCLE - INSIGHTS

FROM CONFIGURATION TO DEVICE REPLACEMENT. ALL IN ONE

HONEYWELL VERSATILIS CONFIGURATOR

- Universal solution
- Diagnostics
- Connection with Bluetooth
- Integrate with FDM
- Configuration and more
- Versatile platform

HONEYWELL VERSATILIS LIFECYCLE

- Consolidate transmitters
- Go into the details
- Manage existing portfolios

HONEYWELL VERSATILIS INSIGHTS

- Order in-app
- Update notifications
- Immediate support
- Access to documentation
- Spare parts management
- Checking deliveries

ANALYTICAL TECHNOLOGY FOR LIQUIDS

Intelligent Sensors - Unique Measurement Technology

hydrogen purity
The concentration of a specific gas in a binary gas mixture is determined based on the principles of thermal conductivity. The measurement is performed to determine the concentration of the coolant and purge gases (H2 and CO2) used in hydrogen-cooled
Turbine generators during start-up and operating cycles.

- The low drift reduces the calibration frequency
- The high reaction speed enables direct display of process changes

- Proven, reliable measurement for safe start-up and operation
- Online measurement contributes to increased efficiency and operating cost savings

Meredian® glass pH electrodes and redox electrodes
Honeywell's traditional glass sensor electrodes provide proven, reliable pH measurement for
selected applications. The models include combination electrodes as well as separate measuring and reference electrodes.

- Ultrapure water device for precise pH measurement in samples with low conductivity
- Separate measuring and reference electrodes for lower spare parts costs
- Platinum and gold electrodes for accurate Rx measurement

Powerful HB and HBD pH and Redox series
The unique robust reference technology extends the service life in demanding process applications. This saves maintenance and repair costs.

- Optional glass-free electrode made of Durafet for the HBD series
- Prevents contamination of the sensor
- Prevents leakage and clogging
- Extreme temperature and pressure tolerance
- Robust in applications with low and high pH values

Durafet® pH electrodes
With the Durafet pH electrode, the first glass-free, ISFET-based (ion-sensitive field effect transistor) pH sensor for industrial use, Honeywell is a pioneer in the field of innovative pH measurement.

- Waterproof Vario connectors
- Reduced spare parts costs due to robust, glass-free design
- Lower calibration frequency thanks to long-term stability
- 3A-certified design for hygienic applications for online pH measurement in the food and dairy industry

DL5000 Dissolved Oxygen
Honeywell's unique Equillibrium probe technology enables precise and stable dissolved oxygen measurements. This unique technology provides excellent results in both ppb and ppm applications.

- Unique Equillibrium probe technology
- No replacement of membrane, electrolyte or electrode required
- Contamination has no effect

- Not flow sensitive

UNIQUE INNOVATIONS

Honeywell is a market leader in analytical products and solutions with unique technologies.

Innovations in analytical measurements mean more reliable systems,
more cost-effective solutions
and safer environments.

process controls on
This basis enables maximum plant availability and increases your profitability by minimizing costs.

ANALYTICAL TECHNOLOGY-
LIQUIDS

Multiple Input Analyzer

ADDED VALUE AND IMPROVED PERFORMANCE

UDA2182 series analyzers

The UDA2182 series includes versatile analyzers with dual and
Single input for pH, ORP, contact conductivity and dissolved oxygen. The mix-and-match design offers the user great flexibility for a wide range of applications. The familiar form, fit and function of previous Honeywell analyzers ensure quick and easy integration into existing panels and installations.

- Versatile Multiple Input Analyzer
- "Mix-and-Match" process measurements
- Complete status at a glance – graphic LED display
- Quick and easy commissioning – even with wireless configuration
- Remote monitoring via websites
- Single or dual input for measuring pH, ORP, contact conductivity and dissolved oxygen

- Dual input in any measurement configuration
- PID control
- Up to 3 analog outputs
- Up to 4 alarm relays
- Illuminated graphic LED display
- Housing Type 4
- Configurable for infrared PC and pocket PC
- CE/ FM Class 1, Div. 2 certifications
- Event history
- Real-time clock
- Automatic cleaning/Automatic calibration

- Ethernet/Modbus communication
- Eastern European languages

pH input

The pH input is compatible with different sensors: glass-free
Durafet®, high-performance sensors from the pH series and conventional Meredian® glass electrodes, redox combination electrodes and the HPW700 ultrapure water system. In addition to the base unit, the pH input has:

- Automatic buffer calibration
- Compensation of ultrapure water solutions
- 0.2 sec update rate for fast-response Durafet pH electrodes

conductivity input

The conductivity input receives signals from Honeywell's standard contact conductivity cells.
Conductivity unit also has:

- Temperature compensation curves
- Calculation of rejection in %, passage in % and the difference between two cells
- Conversion of total dissolved solids (TDS) to ppm, ppb or ppt
- CO_2concentration algorithm
- pH from differential conductivity

entry of dissolved oxygen

The dissolved oxygen is introduced via the unique
Balance probe from Honeywell. This has the following additional functions:

- Measurement in ppm or ppb
- Automatic or manual calibration
- Compensation of ambient temperature and air pressure

ANALYTICAL TECHNOLOGY - LIQUIDS

| pH & Redox electrodes

ADDED VALUE AND IMPROVED PERFORMANCE

				
sensors	**Durafet® pH solid-state electrode**	**Meredian II pH glass electrode**	**redox electrodes (ORP)**	**HPW7000 pH measuring system for ultrapure water**
measuring 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 & temperature	Depending on the sensor	Depending on the sensor	Depending on the sensor	1 to -10 inches WC (0.249 to -2.49 kPa) 10° to 80° C (40° to 176° F)
components/material	Body made of Ryton, semiconductor electrode, seal made of Viton and EPDM	Body made of Ryton, glass electrode, seal made of EPDM	Body made of Ryton, gold or platinum electrode, seal made of EPDM	316L SS flow chamber, glass electrodes, 316 SS temperature sensor
Special performance features	Response 10x faster than glass, replaceable reference connection, waterproof VarioPin connectors	Durable reference electrode, integrated cable	Fast network disconnection options	pH accuracy of 0.1 pH in processes with a conductivity of <10 uS/cm
fastening	See Mounting Types	See Mounting Types	See Mounting Types	panel installation

					
fastening	**Fastener 7773**	**Fastener 7774**	**Fastener 7777**	**Fastener 7794**	**HB/HBD series**
measuring range	0-14 pH ±1600 mV Rx	0-14 pH ±1600 mV Rx	0-14 pH ±1600 mV Rx	0-14 pH	0-14 pH ±1600 mV Rx
temperature range	Depending on the sensor	Depending on the sensor	Depending on the sensor	- 10° to 110° C (14° to 230° F)	Depending on the sensor
pressure & temperature	Immersion/ Polypropylene: 689 kPa @ 60° C (100 psig @ 140° F) 316 SS: 689 kPa @ 80°C (100 psig @ 176°F) Flow/Polypropylene: 689 kPa @ 60° C (100 psig @ 140° F) 316 SS: 515 kPa @ 80° C (150 psig @ 176° F	316 SS: Depends on 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)
components/material	Polypropylene, Ryton or 316 SS	ball valve, mounting nipple & extension hose, O-rings made of 316 SS or CPVC EPDM & Viton	Electrode body made of Durafet and Glass: Ryton	Body: Polysulfone	Body: Sensor optionally made of CPVC, polypropylene, Kynar or glass-free Durafet included in the HBD series
Special performance features	Enables installation of separate measurement and reference electrodes in one fixture	Insertion/removal under pressure without process interruption		3A hygiene approval for food & dairy products	The robust reference design reduces contamination and contamination in harsh environmental conditions
fastening	immersion or flow	1 1/4 inch NPT (316 SS) or 1 1/2 inch NPT (CPVC) pipe nipple through ball valve	submersible installation or Inline (3/4 inch NPT thread)	1 1/2, 2 or 3 inch three-terminal flange mounting	Model 546: Inline or submersible installation Model 547: Ball valve Model 551: Nut

ANALYTICAL TECHNOLOGY - LIQUIDS

conductivity

PROVEN TECHNOLOGY FOR RELIABLE MEASUREMENTS

A comprehensive range of analyzers and transmitters equipped with conductive and inductive conductivity measuring cells and Honeywell mountings and are used to measure conductivity, resistivity, salinity and certain chemical concentrations These measurements can be made in many industrial processes and water treatment applications.

				
sensors	**4973 Conductive conductivity cells**	**4905 Conductive conductivity cells**	**4909 Conductive conductivity cells**	**5000TC Inductive conductivity cells**
measuring range	0.01, 0.1, 1.0, 10.0 cell constants, 0.055µS/cm to 250 mS/cm	0.01, 0.1, 10.0, 50 cell constants, 0.055µS/cm to 1S/cm	0.01, 0.1, 10.0, 50 cell constants, 0.055µS/cm to 1S/cm	0.2 to 200 milliSiemens/cm
pressure and temperature	1724 kPa @ 140°C (250 psig @ 284°F)	1034 kPa @ 130°C (150 psig @ 266°F)	SS: 3.45 bar @ 140°C (50psi @ 284°F), CPVC: 2.07 bar @ 140°C (30psi @ 284°F)	Polypropylene: 6.9 bar @ 100° C (100psi @ 212° F), PVDF: 6.9 bar @ 120° C (100psi @ 248° F), PEEK: 13.8 bar @ 150° C (200psi @ 302 °F), PFA Teflon: 13.8 bar @ 150°C (200psi @ 302° F)
components/material	titanium or graphite	nickel or platinum	nickel or platinum	Polypropylene, PVDF, PEEK, PFA Teflon
fastening	3/4-inch NPT screw thread	1-inch NPT screw thread	Inserting/removing the ball valve assembly in CPVC or SS allows the cell to be inserted/removed without process interruption	Immersion, connection adapter, 2-inch sanitary flange or insert/remove

ANALYTICAL TECHNOLOGY FOR LIQUIDS & GASES

| oxygen and gas analyzers

ADDED VALUE AND IMPROVED PERFORMANCE

These analyzer/probe systems determine the concentration of oxygen in water. The patented probe design for determining the equilibrium concentration of oxygen is not affected by inert contamination or changes in flow conditions. The system's analyzer/controller measures the concentration of dissolved oxygen in ppb in power plant and semiconductor applications to detect corrosion and improve the efficiency of the

degasser or in ppm in wastewater, environmental and process applications for control and compliance purposes.

Thermal conductivity

The thermal conductivity system measures the concentration of hydrogen and carbon monoxide-2 gas. This measurement is usually carried out in hydrogen-cooled generators.

- Simple user commands
- Protected with security code
- Reliable semiconductor design
- Height

reaction speed

- High sensitivity
- Excellent stability
- Low maintenance requirements
- Low installation costs due to optional remote mounting
- the sensor unit (measuring transducer)
- Explosion-proof housing for the sensor unit available for Class 1, Div. 1 areas
- Signal transmission from the

sensor unit up to 1,000 feet over unshielded lead wires

- Panel-mounted 1/4 DIN control unit with easy-to-read display
- Current output signal from the control unit is equal to measured PV
- Single or double alarms
- Three-range analyzer for hydrogen-cooled generator applications is available
- Optional Modbus communication supports configuration and data acquisition

sensor	DL5000 Equilibrium Probe for ppb & ppm applications
measuring range	0-20,000 ppb or 0-20 ppm
temperature range	2° to 60° C (35.6° to 140° F)
printing and temperature levels	316SS: 50 psi (345 kPa) CPVC: 30 psi (207 kPa)
components/material	316SS or CPVC housing
Special performance features	The balanced probe design means no internal maintenance of the probe is required
fastening	Immersion in the tank, linear or in the sample chamber
Dimensions	219 x 34 mm (8.62 x 1.32 inches), 1 inch NPT pipe size, cable waterproof up to 20 feet
reaction time	85% in 60 seconds

PROGRAM CONTROLLER ANDINDICATORS

Digital Controllers

EASY INSTALLATION, EASY CONFIGURATION, EASY OPERATION

		
Universal Digital controller	**DC 1000**	**UDC 1200**
product description	The microprocessor-based controllers of the DC 1000 family combine a high level of functionality and reliability with an affordable price and are available in 4 different DIN sizes.	The UDC 1200 offers a high level of functionality and reliability in a small format (1/16 DIN) at an affordable price. A model for limit control is also available.
front page format	48 x 48 mm (1.89 x 1.89 inches) 48 x 96 mm (1.89 x 3.78 inches) 72 x 72 mm (2.83 x 2.83 inches) 96 x 96 mm (3.78 x 3.78 inches)	48 x 48 mm (1.89 x 1.89 inches)
analog inputs	1 or 2	1
input signal types	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, V, mA
digital inputs	n/a	1
analog outputs	Up to 2	Up to 3
Control of the digital outputs	Up to 2	Up to 2
Alarm for digital outputs	Up to 3	Up to 2
Accuracy (to reference conditions)	±0.2% of functional specification	±0.1% of the measuring span
loops	1	1
network	RS232 or RS485 ASCII	RS485 ASCII or Modbus

Digital control programmers and indicators

EASY INSTALLATION, EASY CONFIGURATION, EASY OPERATION

		
program controller	**UDC 703**	**UDI 1700**
product description	The UDC 703 is a 1/32 DIN format indicator with a small footprint.	The UDI 1700 is an inexpensive horizontal indicator in 1/8 DIN format for the most common process variables.
Dimensions (L x H x D)	48 x 25 x 100mm (1.93 x 0.98 x 3.94 inches)	96 x 48 x 100mm (3.78 x 1.89 x 3.94 inches)
accuracy	±0.10% of the measuring span	±0.10% of the measuring span
analog inputs	1 Universal	1 Universal
input signal types	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, V, mA
display types	4-digit, LED (red)	4-digit, LED (red)
alarm points	2	3
Digital input	No	Yes
transmitter power	No	Yes
network	RS485 Modbus	RS485 ASCII or Modbus

CONTROLLER

| Universal digital controller UDC2800

EASY INSTALLATION, EASY CONFIGURATION, EASY OPERATION

OVERVIEW

The unmatched application performance includes a Bluetooth Configuration interface, two universal analog inputs and a mathematical algorithm. When these components are combined with Accutune IIITM tuning with fuzzy logic overshoot suppression, the result is a leading price/performance ratio. Application flexibility is ensured by the universal analog inputs, universal AC power supply, two digital inputs, maximum two analog inputs and four digital outputs, RS485 Modbus RTU or Ethernet 10/100M Base-T TCP/IP communication protocols, ease of configuration and the ability to fully upgrade in the field for all optional features.

Characteristics

The UDC 2800 is the next generation of panel-based temperature controllers. It is more connected, more accurate, faster and more efficient, offering improved performance and lower running costs. With Bluetooth and remote connectivity, App-based configuration and a full-color TFT screen, it is a user-friendly, powerful solution for single loop control of ovens, furnaces, boilers, heaters, climate chambers, stoves, dryers and freezers.

Advantages

The UDC2800 offers 0.15% accuracy and a market-leading 100ms scanning speed to quickly capture trends and help users achieve their target

temperature profile. It supports up to 64 setpoint segments and four PID sets, with RTD, TC, mV, mA, RH, carbon and oxygen inputs as standard, and two universal analog inputs.

UDC2800 can meet the needs of even the most complex operations.
The controller complies with the aerospace standard ASM2750F and NEMA4X for food and beverage cleaning. The controller is a single solution upgrade of the UDC2500 and UDC3200 controllers with a single solution for easier maintenance, inventory management and orders. It is also fully backwards compatible, retaining the same 1/4-DIN form factor, connector layout and rear panel as previous models.

To use

The UDC2800 is a single solution for efficient and accurate temperature control to meet regulatory requirements, optimize performance, ensure product quality and minimize waste.

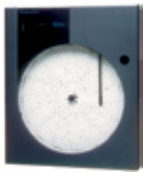
RECORDING DEVICES ANDDATA COLLECTION

| circular, strip and screen recorders and data acquisition

HONEYWELL PAPERLESS WRITER: FLEXIBILITY, SECURITY AND NETWORKING

local newspaper writer
Honeywell pie chart recorders are ideal for batch processing. The Honeywell pie chart recorder shows all the processes of a batch in a specific period of time (one hour to 31 days). Another advantage of pie chart recording is the easy storage and

Reproduction. Compared to Unlike a strip chart, the pie chart has a smaller calibrated width.

				
pie chart recorder	**DR4300 Basic**	**DR4300**	**DR4500 Classic**	**DR4500 Truline**
chart size	254 mm (10 inches)	254 mm (10 inches)	305 mm (12 inches)	305 mm (12 inches)
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	Pre-printed	Pre-printed	Pre-printed	Self-printing thermal paper
steering	n/a	2 loops	2 loops	2 loops
mathematics	n/a	summation	Yes	Yes
network	n/a	Modbus RTU	Modbus RTU	Modbus RTU
Optional software	n/a	Trend Manager Pro/Specview	Trend Manager Pro/Specview	Trend Manager Pro/Specview

Paperless writers
Experience the flexibility, security and networking capabilities of Honeywell's X-Series paperless recorders.

The eZtrend, Minitrend, Multitrend and DR Graphic recorders are easy to configure and offer remote display and control, navigation per touch screen,

high storage capacity, custom screen design, diagnostic functions, software support and much more.

				
Paperless writers	**eZtrend**	**Minitrend**	**Multitrend**	**DR Graphic**
displays	145 mm (5.7 inch) color LCD (Active TFT display) QVGA	145 mm (5.7 inch) color LCD (Active TFT display) VGA	307 mm (12.1 inch) color LCD (Active TFT display) XGA	307 mm (12.1 inch) color LCD (Active TFT display) XGA
analog inputs	Up to 12	Up to 16	Up to 48	Up to 16
data storage	SD card / USB stick	SD card / USB stick	SD card / USB stick	SD card / USB stick
sampling rate	100/200/500 ms	20 ms (linear input)* / 100 ms	20 ms (linear input) / 100 ms	20 ms (linear input) / 100 ms
Digital input/ outputs	Up to 8DI/8DO	Up to 16DI/16DO	Up to 48DI/48DO	Up to 16DI/16DO
network	Ethernet	Ethernet / RS485	Ethernet / RS485	Ethernet / RS485
Mathematical functions/scripts	Yes No	Yes/Yes	Yes/Yes	Yes/Yes
reference accuracy	0.1% Typical T/C	0.1% Typical TC	0.1% Typical TC	0.1% Typical TC
configuration	PC or front panel	PC or front panel	PC or front panel	PC or front panel
remote display	Yes	Yes	Yes	Yes

RECORDING DEVICES AND DATA COLLECTION

Paperless recorders and data capture

HONEYWELL PAPERLESS WRITER: FLEXIBILITY, SECURITY AND NETWORKING

TrendManager software suite The reliable paperless recorders and software from Trendview
facilitate recording and improve data availability to facilitate decision making. The TrendManager Software Suite includes the TrendViewer standard software package, the advanced data analysis and archiving software TrendManager Pro, the fully network compatible software

TrendServer Pro for communication with the recorders and Screen Designer for custom screen layouts. This cost-effective, flexible and easy-to-use software suite is what makes the Trend recorders stand out from the rest.

TrendViewer
- Display, graphical representation and printing of stored data
- Printing configurations and process data

TrendManager Pro
Market-leading PC-based data analysis package with
Support from:

- Import data from any recorder
- Import data from all Honeywell products such as DPR180, DPR250 and HC900 controllers
- Data archiving
- Multi-user passwords for multiple levels
- Graphing, plotting and exporting data between all recorders, pens and time windows
- audit trails
- Configuration of the recorders
- Batch management of recorders
- Export of data files in CSV format

TrendServer Pro
Market-leading PC-based communication software for networking your recorder:

- Organization of the client-server architecture
- Scheduling downloads of recorder data (FTP transfer)
- External configuration of recorders
- Real-time data collection
- Communication via RS485 and/or Ethernet
- Integrated support for OPC servers
- Modbus, FTP, web browser
- Batch report tool
- IQ/OQ protocol tool

database management tool
TrendServer Pro is included

- Secure data administration
- Archiving, sorting, moving, copying and deleting data in a local or remote database
- Tree structure for easy finding of file locations
- Sort data by recorder or display in monthly archive
- Storing the data on a secure server

Screen Designer
Custom, tailored to your application needs
customized display

- Extremely flexible design allows the creation of custom screen layouts

- Configure the display for optimal monitoring of your processes
- With bitmap image input for better process understanding

tools
- AMS2750D Reporting Tool
- Generation of survey reports

PAPERLESS BENEFITS

Ease of use
Special display buttons and full-screen menus enable quick access to information and its interpretation.

Easy decision-making Online data analysis enables quick operator responses
in case of process disruptions.

Fulfilled
documentation requirements
Permanently archived
Recordings of process and configuration data can be saved on data media and played back on the recorder or PC using the data analysis software.

Easy to use
and manage
Reduced maintenance costs, no need for consumables such as pens and paper, and greater reliability as no mechanical print assembly is required.

Low overall costs
Paperless recorders offer significant advantages over traditional paper recorders. Inexpensive storage media and LCD color displays help reduce operating costs and improve

data analysis. Without the sensitive print mechanisms and other mechanical parts, reliability is increased.

Easy Networking
The products can be connected directly to the LAN (Local Area Network) via Ethernet with Modbus TCP/IP protocol. Multiple departments can access these instruments via the LAN to enable real-time data collection.

SCALABLE CONTROL SOLUTIONS

ControlEdge™ PLC

SECURE CONNECTIVITY AND PRECISE INTEGRATION OF DEVICES FROM DIFFERENT PROVIDERS – WITH SIMPLE CONFIGURATION, EFFICIENT PROCEDURES AND REDUCED MAINTENANCE EFFORT.

Honeywell's advanced PLC technology improves control performance while providing greater flexibility and lower costs. The new ControlEdge™ PLC improves integration with Experion®, HMIs and third-party devices and reduces configuration effort by using the internationally recognized IEC 61131-3

programming languages and decentralized configuration and firmware updates. Honeywell's ControlEdge PLCs provide solid control in a wide range of process applications. This pioneering controller family is compliant with the IEC 61131-3 standard and offers impressive scalability for different environments.

Key Highlights
The ControlEdge PLC is based on the proven 900 platform of device frames and power supplies currently used by HC900 controllers.

- First PLC with universal I/O for more flexibility in configuration
- Designed and developed by Honeywell, a global leader in process automation for over 40 years
- Tight integration with Honeywell's Experion, the best-in-class distributed control system (DCS), supervisory control and data acquisition (SCADA) and safety system.
- Native controller redundancy
- Optional redundant power supplies
- Two power supply variants: 60 W 24 VD/C and 110/240 VA/C
- Uses Honeywell's LEAP project methodology and universal I/O for greater configuration flexibility
- I/O racks in different sizes
- Integration of systems and devices from other manufacturers, such as motors, drivers and compressors
- Connection to human-machine interfaces (HMIs) via Modbus and OPC UA protocols
- Compatible with leading open network standards such as Modbus and OPC UA
- Powerful IEC 61131-3 programming environment
- Best-in-class cybersecurity for security of
- System, personnel and critical information
- Service and support from a single source for PLC, DCS and security

Outstanding integration skills With Honeywell technologies, industrial sites have a flexible way to provide efficient, seamless data access with easy configuration and maintenance.

ControlEdge PLCs are tightly integrated into the Experion control system architecture. By choosing an automation provider whose portfolio includes both DCS and PLC solutions, users have a single point of contact for support and supply chain, reducing capital expenditure and total cost of ownership.

Universal I/O for more project flexibility
Honeywell's automation experience and an innovative LEAP method are the key to greater flexibility and thus to optimized project implementation.

LEAP offers significant savings in the total cost of a automation project is possible, the costs for rework are reduced and schedule delays are minimized.

The core of the LEAP approach is the implementation of 16-channel universal I/O modules - flexible I/O types, which eliminates the need for individual PLC
Hardware customization is required for different I/O configurations. Each field signal can be connected to an I/O channel. Deploying UIO provides greater flexibility for last-minute changes, such as configuration and design changes in a typical automation project.

The UIO module reduces device count by eliminating the need for hardware with other I/O configurations, allowing you to achieve significant savings in spare parts inventory and incidental costs.

SCALABLE CONTROL SOLUTIONS

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Integrated OPC UA protocol As the protocol of choice for the IIoT, OPC UA offers a secure, reliable and vendor-neutral transfer of raw data and preprocessed
Information from the sensor/field level to the production level. Through this protocol, which is integrated as a client and server directly in the controller, the ControlEdge PLC from Honeywell offers the flexibility to choose between the interfaces and at the same time enables the integration of a wide range of
systems and devices from other providers.

controller redundancy
For Honeywell, redundancy means immediate operational readiness. Programming is no different than for a

non-redundant controller. ControlEdge PLC eliminates the point of complexity. No additional infrastructure is required to synchronize data between the CPMs.

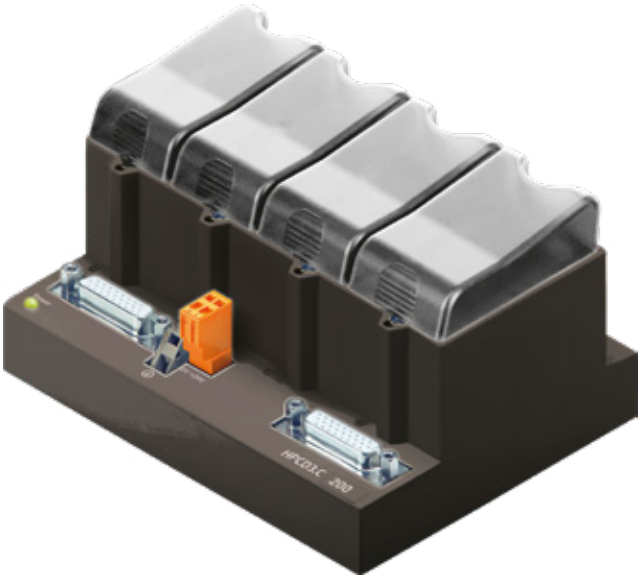
High cybersecurity
Our built-in cybersecurity ensures compliance, reduced risk and increased availability. Features include Secure Boot (prevents unauthorized software upload), an integrated firewall (reduces denial-of-service attacks and flooding with

messages), encryption of critical data, and easy configuration, authentication and authorization through a trusted certificate.

SCALABLE CONTROL SOLUTIONS

| ControlEdge™ PCD

CONTROLEDGE™ PCD FEATURES ENHANCED CYBERSECURITY AND HIGH-LEVEL LANGUAGE PROGRAMMING AND IS COMPATIBLE WITH ITS NATIVE PCD3 I/O FAMILY.



What is it?
ControlEdge PCD is a new generation PLC with modular I/O and multiple communication interfaces. It offers a high level of
Fail-safe with CPU redundancy, robustness, reliability and proven design with more than 30 years of field use.
Due to its stable cassette construction

paired with integrated communication interfaces and numerous

Powerful and efficient engineering: High-level language programming according to IEC 61131-3 offers greater flexibility. It provides access to a large developer community whose published solutions can be more easily reused.

Internet security:
Based on the industrial automation standard ANSI ISA 62443 (SL 3/SL 4), its integrated security features ensure a secure connection to the Internet and the cloud while encrypting the transmission and storage of data. In addition, it relies on modern role-based user management.

Multi-protocol support in a single controller: Simple and seamless
System integration of up to 14 communication interfaces. Users have full freedom to combine different protocols via Ethernet and serial interfaces – such as OPC-UA, web/IT protocols (email, SMS, HTTPs, MQTT), Modbus and Profinet. Users can also integrate customer-specific protocols via the application program.

Encryption protects your data: Supports Micro SD cards up to 32GB and provides large storage space for user data such as trend logs, alarm and event history and all other information generated during operation. The

encrypted file system protects the data from unauthorized access.

It is versatile thanks to its expansion options. Thanks to the CPU's generous memory resources, you can record, monitor, archive and manage data and status largely without PC systems. In addition, it supports an integrated web server for monitoring and control as well as an engineering tool with a graphical web editor for visualization.

EXPERION®
PANEL-PC

HUMAN-MACHINE INTERFACES (HMI)

THE EXPERION® PANEL PC FLEXIBLY TAKES EXPERION HMI OUTSIDE THE CONTROL ROOM FOR DEMANDING INDUSTRIAL CONTROL APPLICATIONS

What is it?
Experion PPC (Panel PC) is an industrial-grade touch panel PC based on robust, easy-to-maintain hardware and equipped with the proven Human Machine Interface (HMI)
used by Experion.

In combination with specially assembled Experion components, Experion PPC meets

Your local operating requirements, regardless of your industry, process or machine size and
- complexity. It allows you to break free from the proprietary embedded panel-HMI mix, reduce maintenance effort, reduce complex data integration methods and improve process data flow in your plant.

How does it work?
Experion PPC supports flexible operating modes to effectively accommodate different system architectures. PPC can operate as a standalone SCADA server with station, remote Experion DCS station and/or
Thin Client. It uses simple, easy-to-use Experion HMI and tools that allow plant personnel to flexibly and securely connect to a variety of controllers.

What problems does it solve?
- Significantly shortens start-up and commissioning time and reduces data integration costs
- Fast commissioning, uniform data exchange with controllers, effective operation and change management
- Avoid training and maintenance costs for HMI systems from multiple vendors, obsolescence risks and integration costs
- Increased system availability, operator effectiveness and emergency response through consistent operator view at different operational levels
- Reduce integration and configuration costs for panel HMIs that use proprietary or traditional interfaces

  be used
- Eliminate
  Interoperability issues arising from the use of proprietary or embedded operating system-based panel HMI(s).

SCALABLE CONTROL SOLUTIONS

Experion solutions

SCALABLE SOLUTIONS FOR VARIOUS CONTROL REQUIREMENTS

Experion LX
Experion LX is a proven, user-friendly and purpose-oriented process control system.

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

applications. Experion LX includes Honeywell's latest C300 control technology and an innovative Series 8 I/O platform.

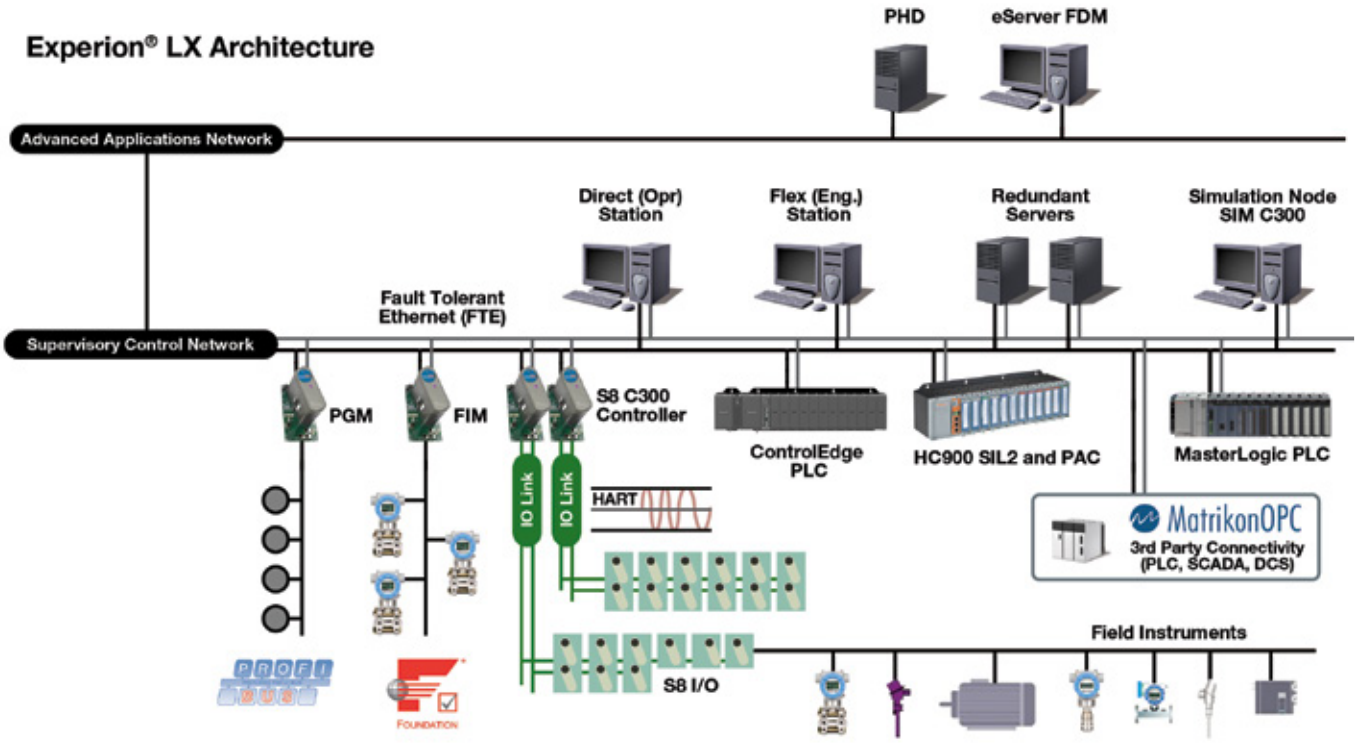
Advantages:

- Maximizing plant uptime
- Optimization of process efficiency
- Increase plant agility and performance to improve operational challenges to overcome
- Increase operator efficiency through alarm management and alarm displays
- Seamless communication with third-party devices and drives
- Lower OPEX thanks to lower total cost of ownership
- Ensuring the scalability of the control system for future expansions

Experion HS SCADA systems Experion LX is a powerful software platform that combines innovative applications for human-machine interfaces and SCADA (Supervisory Control and Data Acquisition). Based on the proven technologies of the Experion platform, Experion HS is an integrated, affordable solution for smaller machining units.

Features:

- Over 500 pre-configured displays
- HMI with preconfigured displays
- Integrated history and trend analysis
- Integrated alarm and event system
- Reports
- 15 dual window client stations
- SCADA support for a wide range of devices
- OPC Suite and open standard communication protocols
- eServer for browser view



SCALABLE CONTROL SOLUTIONS

MasterLogic Programmable Logic Controllers

GREATER VERSATILITY WITH SIMPLIFIED TECHNOLOGY

Advanced technology – at an affordable price
MasterLogic's advanced technology enables faster processing and better control in a wide range of applications, especially in small business operations. This compact, modular PLC includes all the redundancy options needed for the most common industrial applications, at a competitive price. The versatile family of I/O modules and network options allows for flexible integration of MasterLogic into the automation plan.

The MasterLogic PLC from Honeywell features:

- Powerful and versatile processors for high-speed applications (42 ns/step, 7 MB program memory, 4 MB system memory, 2 MB data storage and integrated 16 MB flash memory for program and data backup)
- Full redundancy of CPU, power and network
- Compact, pocket-sized modules
- IEC61131-3 standard programming with language options LD/SFC/ST/IL
- Large library of standard function blocks, the creation of new or user-defined function blocks is supported
- Over 50 I/O module types, e.g. B. High Speed Counter and Sequence-of-Event Modules
- Open network protocols with field devices (Profibus DP, DeviceNet, HART, “Modbus TCP/RTU/ASCII”) and user-defined frame option
- Open communication with external systems via 10/100Mbps Fast Ethernet and Serial RS232C/RS422
- Peer-to-peer communication between PLCs via 100 Mbps Ethernet or fiber optic
- Hot-swapping, online editing, user-defined interrupt programs
- Integration into Experion PKS, Experion HS or Experion LX architecture and SCADA systems
- Self-diagnosis with network diagnostics, system log, automatic review and system monitoring
- Program simulator for offline testing of programs without PLC/CPU

The MasterLogic PLC is a powerful and scalable rack-based programmable logic controller. It can be installed as a standalone unit or in a distributed architecture. A variety of CPUs, power supplies and different rack sizes are available to meet the needs of a wide range of applications.

Honeywell's integrated approach The MasterLogic is much more than just a "better" PLC: The manufacturer focused on the entire automation system rather than the individual components. Honeywell has always looked at automation problems as a whole. The holistic approach first developed in the 1970s with the introduction of the process control system

System strategy supports integrated Architectures with unified detection, control, operations and information management.

The various elements of a plant automation system can be installed, commissioned and operated together without an implementation engineer having to make extensive adjustments and fine-tuning. The hardware and software components designed for compatibility continue to function reliably. And if you

If you want to expand or improve your system, this is also easily possible.

Key aspects of Honeywell systems include:

- Standard displays, panels and detail displays have a consistent layout for greater usability, even when used with third-party controllers
- Integration of MasterLogic alarms and events into Experion HS Alarm and Event System with Event Sequence Information
- The key functionality connects the process-networked real-time world of the controller with a graphical user interface (GUI) and with functions of the system monitoring such as monitoring and alarm management
- The data management functions are based on historical data collection and report submission

SCALABLE CONTROL SOLUTIONS

HC900 Process & Safety System

FLEXIBLE SYSTEM FOR SAFETY AND PROCESS CONTROL

HC900 controller

The HC900 is an integrated solution with a single, flexible system for process control and safety with shorter start-up time, common engineering tools, reduced training requirements, simplified training and lower total cost of ownership. The combination of analog control loops, setpoint programs, function block configuration, data acquisition and a wide range of pre-set analog and digital blocks makes the HC900 the product of choice for many industries: thermal processing, water treatment, food and beverage processing, power generation, pharmaceuticals, manufacturing, semiconductor and other safety-critical applications such as burner control, combustion control, pipeline monitoring, fill protection 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 options to cover a wide range of automation requirements. The following CPU options are available for the HC900 controller: option for non-redundant applications, option for redundant networks and an option for both redundant CPU applications and redundant networks. For greater installation flexibility, up to 11 additional remote I/O racks can be connected to one controller, reducing both cabling and installation costs.

The versatile HC900 controller is the ideal solution for plant controls with cyclic and logical processing. With up to 1152 universal analog inputs, comprehensive math and freeform calculations, it is also the ideal data acquisition package. The intuitive, function block-based software enables rapid deployment, saving you time and money. Open Ethernet connectivity simplifies plant network integration. Redundant CPUs, power supplies and networks enable maximum process uptime.

The HC900 consists of three components: a powerful controller (process or safety controller with modular inputs and outputs), a user interface with color display and compact flash card (4 GB) and intuitive configuration software.

The HC900 system is also available with similar TÜV-certified hardware for security applications.

Controller:

- Modular I/O design
- Multiloop PID control
- Setpoint programmer and - Planner
- Process logic, timer, performance indicators
- Process algorithms, calculations
- Universal analog inputs
- Storage of setpoint profiles and recipes
- Remote Terminal Panels (RTP)
- Redundant CPUs and power supplies

Control Designer Software:

- Drag-and-drop linking of function block objects
- Loading the configuration via Ethernet, serial communication modem
- Printed graphics
- Loading/Uploading and Monitoring the configuration via modem
- Database export in CSV or table format

HC900 controller		
analog inputs	Up to 1152 universal analog inputs, 2304	
accuracy	±0.1% of span (field calibration to ±0.05% of span)	
analog outputs	Up to 480 user-defined measuring ranges from 0 to max. 20 mA, 12 bits, 0.1% accuracy	
digital inputs/ - outputs	Up to 4608, contact DI, 24 VD/C DI/DO, 120 VA/C DI/DO, 240 VA/C DI/DO, relay DO	
functional blocks	C70, C75 CPU-5000, C50 CPU-2000, C30 CPU-400	
I/O racks per system	Up to 12 in total	
control loops	PID, On/Off, Cascade, Ratio, %C, RH, Dew Point	
types of control outputs	current, time control, position control, three-point step	
setpoint programmer	50 segments each, 16 event outputs, profiles stored in the controller	
setpoint planner	50 segments, 8 ramp outputs, 8 aux outputs, 16 events, plans stored in the 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, slave (up to 16) or master operation	
power supply	120 VA/C to 240 VA/C or 24 VD/C	
operating temperature	0° to 60° C (0° to 140° F)	
humidity	10% RH, up to 90% RH, non-condensing	
rack size	4 slots	266.7 mm (10.5 inches)
	8 slots	419.1 mm (16.5 inches)
	12 slots	571.5 mm (22.5 inches)
HC900 Control Designer Software		
configuration	Offline, with program run and edit mode	
operating environment	Windows Vista, XP SP2 Professional Support, Windows® (32 and 64-bit, Win 8, Win 10)	
PC	At least Pentium 1 GHz with 64 MB RAM (2.5 GHz with 512 MB recommended), screen resolution: SVGA (1024x768 recommended)	
Cable	RS-485 cable to configuration port or Ethernet 10BASE-T	
modem support	Monitor, upload, download configurations	

The HC900 process and safety control system offers:

- High performance – improved quality
- Easy to use and configure – Improved productivity
- Low total cost of ownership – Improved profitability

SCALABLE CONTROL SOLUTIONS

HC900 Process & Safety System

FLEXIBLE SYSTEM FOR SAFETY AND PROCESS CONTROL

user interface

The Honeywell 900 Control Station operator interface complements the HC900 Controller with a unique combination of preset screen features and custom screen developer tools for ease of use and flexibility in an efficient package at an affordable price. The color display and touch operator interface simplify process monitoring and enable online changes to the controller. The Station Designer software is used to configure the operator interface and interacts with the HC900 Controller configuration software to automatically create a Control Station database that exactly matches the unique, user-configured controller database. This integrated process eliminates the time-consuming task of mapping the addresses in the controller's communications register to the operator interface screen parameters. The Control Station's standard database allows import of all available controller tags without limitation or additional cost, eliminating the risk of reaching tag resource limits in the middle of a project. The 900 Control Station hardware is designed for harsh industrial environments: it features a metal housing and a Type 4X waterproof front panel. The hardware command keys on the front panel complement the touchscreen software's soft keys for common tasks such as user logout, restoring last screen properties, and accessing the main menu.

user interface area	model 900CS10-00	Model 900CS15-00
Advertisement	Size: 264 mm (10.4 inches) Resolution: 640 X 480, color LCD	381 mm (15 inches) Resolution: 1024 X 768, color LCD
data protocol lation	Media: Fugitive RAM memory, optional permanent flashcard 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 permanent flashcard memory or removable USB memory module, secure Data archiving, data types: process history, alarms, Events, diagnostics, user changes. Export format: CSV
power supply	+ 24 VD/C ±20% @ 29 W max. Requires Class 2 or SELV power supply. LED power indicator on front panel	+ 24 VD/C ±20% @ 46 W max. No options. Requires Class 2 or SELV power supply. LED power indicator on front panel
Security	ANSI/UL 61010-1 – 2005, Second Edition. General Purpose (Ordinary Location) Safety. UL certified according 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 certified according 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
operating temperature	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)
humidity	Operating and storage humidity: 80% max. relative humidity (non-condensing) from 0 to 50° C.	Operating and storage humidity: 80% max. relative humidity (non-condensing) from 0 to 50° C.

The 900 Control Station is available in screen sizes of 10.4 inches and 15 inches. Both models are configured using the Station Designer software.

Communication:

- Modbus/TCP protocol
- USB ports: according to USB specification 2.0
- RS232 serial ports (RJ12 ports)
- RS485 comm. port (RJ45 connector)
- Ethernet port: (RJ45 port) – connected as NIC (Network Interface Card)
- 10BASE-T/100BASE-TX
- Redundant networks

User interface:

- Operation of the function blocks of the HC900 controller, e.g. PID, setpoint programmer, etc.
- Loading/monitoring setpoint programs and recipes
- View analog/digital status
- Display of bar charts
- Display of trends
- Display of alarm and event status
- Control via command keys
- Expandable memory with flash memory socket for logging & configuration transfer
- Save the configuration on permanent memory for safe operation
- Integration of HC900 controller alarms/events or their integration into the user interface
- Emulator
- Multilingual (5 languages: English, German, French, Spanish and Italian)
- Batch reports

REMOTE TERMINAL UNIT

| ControlEdge RTU2020

RECOGNIZE THE PRODUCTION POTENTIAL OF YOUR OIL AND GAS PLANTS

The Honeywell RTU2020 Remote Terminal Unit (RTU) is a modular, powerful and scalable controller that is suitable for all decentralized automation and - control applications. Combined with Experion® LX and its radically simplified SCADA configuration with outstanding user experience, it meets the

most complex requirements of remote automation for the oil and gas industry.

Our modern external control unit RTU2020 offers you the perfect insight to identify the production potential of your oil and gas plants through secure, reliable remote monitoring and remote diagnostics combined with efficient plant management – all at a low total cost of ownership.

Lowest power consumption
The RTU2020 has the lowest power consumption on the market at just 1.9 watts, even when using HART. Once HART is required, other RTUs require additional hardware that requires more power, while HART is already built into the RTU2020. Even in tropical and desert environments, little to no cooling is needed.

Efficient cable routing and assembly The RTU2020 has removable field terminals so that you can connect the cables even when wearing gloves. In addition, the I/O type and number printed on the terminal for guidance during installation. Together, this saves installation costs and reduces faulty wiring.

High-performance RTU with HART-capable, integrated inputs and outputs
With its modern 667 MHz dual-core processor, the RTU2020 has the performance required for today's applications plus a reserve for the needs of tomorrow. Thanks to the integrated HART protocol, the RTU2020 does not require any additional expensive and energy-intensive HART I/O modules or components from other suppliers.

Special features:

- With 1.9 watts, it is by far the lowest power consumption in its category
- Temperature range -40 to 75° C (-40 to 167° F). Up to 75° C (comparable units only up to 70° C)
- High reliability thanks to solidly constructed heat paths
- HART-capable integrated and expandable I/O modules. No additional hardware required. Digital HART data and Fault diagnostics are available locally for use in RTU program and remote alarms
- HART IP for remote management of HART devices via Honeywell's Field Device Manager Express
- Efficient cable routing and configuration save time during installation and maintenance
- Modern, powerful CPU for today's and future requirements
- Suppression of voltage peaks on each I/O channel and during each communication
- Powerful IEC 61131-3 programming environment
- Liquid and gas calculations in one controller
- Flexible communication options for uplink and downlink
- Industry standard protocols for Modbus & DNP3, both as master and slave
- Secure communication with authentication and encryption
- Integrated data logging, optionally on SD card
- Certified for use in potentially explosive areas

Meaning of HART
Thanks to robust data logging, stable subsystem communication between local devices and intelligent HART integration, the RTU2020 eliminates the need for on-site maintenance and enables better fault modeling, both directly in the RTUs and at central locations.

Withstands harsh environmental conditions
The RTU2020 was designed for the toughest conditions with a Operating temperature range from -40 to 75° C at a humidity of 5% to 95%. The coating of the RTU2020 is made of G3-compliant material and is certified for use in potentially explosive areas.

Flexible communication connections, standard protocols
RTUs must efficiently manage unreliable, low-bandwidth networks and support remote communications as well as redundant and master/slave communications to provide data buffering and history backup.

Solid data logging for continuous data availability The RTU2020 contains Data logging capabilities for assigning values to data files on the flash memory or onboard SD card (optional), supporting up to 32 GB of data, ensuring that important data is not lost and is available for future analysis.

ACTUATORS

HercuLine

INTELLIGENT DESIGN FOR LOWER TOTAL COST OF OWNERSHIP

			
HercuLine electric drives	**HercuLine 2000**	**HercuLine 2001 / HercuLine 2002**	**HercuLine 10260A / HercuLine 10260S**
product description	low-torque electric drive	low-torque electric drive	Industrial medium-torque electric drive
torque	50 to 400 in-lb (6 to 45 NM)	50 to 400 in-lb (6 to 45 NM)	10 to 300 lb-ft (14 to 400 NM)
stroke/speed	90° to 150°/6 to 75 sec.	90° to 150°/7.5 to 120 sec.	90°/10/20/40/60 sec.
input signals	Potential-free, position-proportional, open/close	1-5 VD/C, 4 to 20 mA	0/1-5 VD/C, 0/4-20 mA, Potential-free, Position proportional, Open/Close
position feedback	1000 Ohm potentiometer	0/1-5 VD/C, 0-16 VD/C, 0/4-20 mA, software emulation	0/1-5 VD/C, 0-16 VD/C, 0/4-20 mA, software emulation 1000 ohm potentiometer
positioning	1000 Ohm potentiometer	2001: Measuring wire 2002: contactless	contactless
Vicinity	- 40° to 85° C (-40° to 185° F)	- 40° to 75° C (-40° to 170° F)	- 30° to 75° C (-20° to 170° F)
duty cycle	Continuously	Continuously	Continuously
repeatability	n/a	0.2% of the 90° measuring range	0.2% of the measuring range
dead zone	n/a	Adjustment 2% to 5% of the measuring range	Adjustment 0.2% to 5% of the measuring range
Automatic/manual Operation	Optional	Optional	Optional
Own keyboard/display	n/a	Optional	10260S: Optional
RS485 Modbus Comm.	n/a	Yes	10260S: Yes

Intelligent ISA100 Wireless Device Integration
The RTU2020 includes an integrated wireless I/O solution for connecting to ISA100 wireless devices. These wireless devices appear as native I/O, as if they were wired to the controller. They are programmed and managed using the same configuration tool. You can use the same intelligent devices as wired devices.

Native redundancy
For Honeywell, redundancy means immediate operational readiness. Programming is no different than for a

non-redundant controller. The RTU2020 eliminates complexity. No additional infrastructure is required to synchronize data between the CPUs and to connect to the I/O modules.

HercuLine electric drives HercuLine electric actuators stand for exceptional reliability, precise positioning and low maintenance. Developed for the precise positioning of dampers and rotary valves, they are particularly suitable for extremely demanding environments where continuous operation,

high reliability and easy maintenance are required. Contactless detection avoids maintenance problems and unexpected failures due to wear of sliding wires and potentiometers.

Intelligent HercuLine drives The new drives from Honeywell contain all the quality and reliability features of the HercuLine drives and also offer the advantages of microprocessor-based electronics.

These advantages make installation, assembly and commissioning of the drive easier. At the same time, they enable you to monitor the
Integrity parameters for proactive maintenance planning.

- RS485/Modbus communication for remote access
- Programmable: alarm and relay outputs, characterization, failsafe functions, dead zone and filtering, direction of rotation
- Diagnostic parameters: Upper and lower temperature limits, delay time and cumulative
  delay time, total distance

HercuLine PC software
- Lower total cost of ownership
- Use your PC for calibration, configuration and maintenance data

- Screen and keyboard not required

CONTROL AND SURVEILLANCE SYSTEMS

frequency converter

HIGH TORQUE AND PRECISE CONTROL

Honeywell's energy-efficient frequency converters meet the Automation requirements in a wide range of industrial segments and process applications, from small fans and pumps to large compressors and from 0.4 kW (1 phase 220 V) up to 1120 kW (3 phases 380 V and 690 V).

A better solution for your application
Honeywell variable frequency drives (VFDs) are specifically designed to support applications. There are five models with different sizes and frequency ranges,

making the solution suitable for a wide range of applications.

Seamless integration with control systems
Each Honeywell drive model features plug-and-play integration with the Experion DCS system and Honeywell's ControlEdge platform. Therefore, hours of manual mapping and integration work can be completed in minutes, reducing the chance of errors. The Honeywell drive is scalable and offers easy connection to I/O modules and communication interfaces and is designed for use with any SCADA system. In addition, end users can benefit from optional Honeywell TotalCare remote and on-site support services to facilitate the installation, commissioning and future expansion of their solution with Honeywell VFD.

Simple and quick configuration Designed with ease of use in mind, Honeywell's VFD drive features a template-based multi-copier that can duplicate configurations, enabling faster commissioning time. It also includes software at no additional cost that minimizes configuration time and provides security, and has a built-in library that can drive applications from pumps to ventilators.

adaptation to your application
Honeywell VFD offers versatile and customized algorithms for your applications. With these built-in algorithms, it can help you with easy commissioning and support a smooth start.

Efficient processes
Energy efficient operation is another hallmark of the drive. Honeywell's variable frequency drive solution offers energy savings of 30 to 40% compared to direct drives, noise filtering harmonics of 18 to 37% THDi, and a DC choke that improves power delivery and reduces harmonics.

It also features low speed torque control for smooth starting.

HONEYWELL CONVERTER MODEL		HAC10	HAC310	MVS100	MVIS7	MVH100
input voltage input frequency		1-/3-phase 220V AC, 3-phase 380V AC 50-60Hz	1-/3-phase 220V AC, 3-phase 380V AC 3-phase 690V AC 50-60Hz	1-/3-phase 200V-240V AC, 3-phase 380-480V AC 50-60Hz	3-phase 200V-240V AC, 3-phase 380-480V AC 50-60Hz	3-phase 200V-240V AC, 3-phase 380-480V AC 50-60Hz
supply voltage / rated engine power kW	3-phase 220V AC	0.75-2.2kW	0.75-55kW	0.4-15kW	0.75-75kW	5.5-18.5kW
	3-phase 380V AC	0.75-22kW	0.75-1120kW	0.4-75kW	0.75-375kW	5.5-500kW
	3-phase 690V AC	-	22-1120kW	-	-	-
	normal load operation	150% of the rated current for 89 seconds, 180% of the rated current for 10 seconds, 200% of the rated current for 3 seconds.	120% of the rated current for 35 seconds, 150% of the rated current for 3 seconds	120% of the rated current for 1 minute	110% of the rated current for 1 minute	110% of the rated current for 1 min. (110-500kW), 120% the rated current for 1 min. (5.5-90kW)
	heavy-duty operation	-	150% of the rated current for 89 seconds, 180% of the rated current for 10 seconds, 200% of the rated current for 3 seconds.	150% of the rated current for 1 minute	150% of the rated current for 1 minute	-
output frequency		0-600Hz	0-600Hz (optional 800Hz)	0-400Hz (optional 1000Hz)	0-400Hz (optional 1000Hz)	0-400Hz
engines	AM	Yes	Yes	Yes	Yes	Yes
	PMSM	Yes	Yes	Yes	Yes	Yes
control method	U/f	Yes	Yes	Yes	Yes	Yes
	U/f PG control	-	-	-	Yes	-
	slip compensation	Yes	Yes	Yes	Yes	Yes
	Vector control with sensor	-	-	-	Yes	-
	sensorless vector control	-	-	Yes	Yes	-
EMC filter		integrated, category C2	integrated, category C2	integrated, category C3	integrated up to 22kW, category C2 or C3	integrated for 0.75kW 30kW, category C3
DC link choke			optional	integrated for 30kW-75kW	integrated up to 220kW	integrated for 37kW – 90kW
protection class		IP20	IP20, IP54 (tailor-made)	IP20, IP66 (up to 22kW)	IP21, IP00, IP54	IP20, IP00
More integrated communication		Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU, BacNet, Metasys N2
communication options		-	CANopen, PROFIBUS DP, Profinet. Optional communication cards for Modbus TCP and Ethernet/IP are planned.	CANopen, PROFIBUS DP, Profinet, EtherCAT, Ethernet/IP	CANopen, PROFIBUS DP, Profinet, LonWorks, CC-Link, DeviceNet, Ethernet/IP	LonWorks

LIFECYCLE-SUPPORT

Global Services and Support

OPTIMIZE STARTUP AND YOUR AUTOMATION INVESTMENT

Global service and support team You can trust Honeywell to help you optimize your startup and automation investment lifecycle. Honeywell's global service and support team is available to help you maximize the return on your technology investment throughout the lifecycle of your plant with personalized service and support.

- Faster, smoother startups
- Reduction of development, procurement, installation and commissioning costs by at least 10%
- Maintaining continuity even when personnel changes
- Maximizing the return on investment
- Avoid unplanned downtime

service employees
Our service staff are experts in their field and have the necessary global certifications for safe installation and

Maintenance of customer systems.

WE OFFER IN THE INDIVIDUAL LIFE CYCLE STAGES THE FOLLOWING SERVICES:

Before installation
- Site inspection
- Advice
- Project planning
- Functional/design specification
- Product selection

During installation
- Provision of hardware/software
- Monitoring the installation
- Development of specific applications
- System configuration and integration

After installation
- Commissioning
- Acceptance tests
- Training
- System optimization
- Remote and on-site service, extended warranty, help desk and emergency support

The result is optimized commissioning and more Safety, reliability, efficiency and sustainability during the lifetime of the devices.

More information

For more information about Honeywell field products, visit www.honeywellprocess.com or contact your Honeywell account representative.

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THE FUTURE IS WHAT WE MAKE IT

Honeywell