

SOLUTIONS FOR OIL & GAS PIPELINES

Lower Risk. Optimized Performance.



Honeywell

DISCOVER YOUR COMPLETE PARTNER FOR PIPELINES

Today's oil and gas midstream demands operational excellence. The industry is under pressure to lower capital and operating costs, improve capacity availability and reduce risk. So, wherever oil and gas needs to be moved, measured or stored, turn to Honeywell for a comprehensive portfolio of measurement and control products and systems that will enable you to better manage your assets and optimize your transport.

With the shortest delivery and service times, Honeywell is your complete partner for products and solutions that are easy to configure, operate, integrate, and maintain while always maximizing your return on investment. Our instrumentation provides the finest precision and highest accuracy, and our solutions are designed and manufactured for the harshest and most demanding metering, regulating and safety applications.

INDUSTRY LEADER WITH GLOBAL EXPERIENCE

Honeywell has been a respected pioneer in the oil and gas industry

for many years. From Honeywell Gas Regulators' introduction of gas valves to the industry in 1847, to the UOP thermal cracking process that set the foundation for oil refining in 1914, through the earliest SCADA and DCS systems in the 1970s, and the first-ever Universal I/O in 2012, Honeywell develops and implements solutions to help you extract more value from your operations.

With customers worldwide spanning some 100-plus countries, Honeywell has an extensive offering ranging from integrated control and safety systems, SCADA and RTU platforms, security and

telecommunications; and advanced software to validate measurements and operate, simulate, and optimize your assets; to a complete family of standalone pressure regulators, flow control valves, and metering and safety devices. We also provide systems for gas pressure reduction stations, local equipment rooms, and other enclosures and skid-mounted equipment—all built to deliver the most accurate control, analysis, measurement, and storage of your oil and gas inventory.

YOUR COMPLETE PARTNER

- Over 150 years in the natural gas industry
- Extensive automation and control portfolio
- Global domain expertise with local support
- Broad suite of products, from single instruments to turnkey solutions
- Seamless integration with plant-wide automation and security
- Guaranteed compliance and accuracy in custody transfer.



INTEGRATED PIPELINES APPLICATIONS

Honeywell has many advanced software solutions along with the experience to integrate your preferred third-party pipelines software manufacturer or in-house developed custom applications.

- Leak detection
- Gas nominations
- Liquids batch scheduling
- Pipeline hydraulic dynamic simulation
- Steady-state simulation
- Real-time-optimization
- Operations management
- Compliance management
- Integrated asset management
- Mobility—Know the 'Pulse' of your plant anytime, anywhere.



LARGE GAS CONDENSATE FIELD AND PIPELINE IN KAZAKHSTAN

Honeywell is providing sustainable development, extending new applications that span from the wellheads to rail car and loading rigs, and improving control performance by introducing advanced control algorithms.



OIL FIELD PROJECT IN IRAQ

Honeywell is improving control performance and operational safety by delivering a SIL-rated solution including DCS, Safety and F&G systems for the entire operations including wellhead controls, the import pipeline, storage tanks, and site infrastructure.



GAS TRANSPORT FROM CHINA'S WEST EAST PIPELINE

Honeywell's broad suite of products and solutions help customers guarantee both accuracy and compliance in custody transfer.



DISCOVER SMARTER INTEGRATION

Honeywell delivers advanced asset optimization products and software that add value through superior asset performance, lowest total cost of ownership, and optimal maintenance that extends the life of your assets. We are focused on making smarter systems, solutions and products with highly intuitive user interfaces for enhanced data visualization and advanced asset monitoring capabilities.

From our SmartLine® Transmitters, Elster® gas meters (ultrasonic and turbine), the compact and easy-to-deploy Remote Terminal Unit (RTU) 2020 and world-leading gas control equipment, to our radically simplified SCADA system, all of our products enhance your ability to maintain and monitor your pipeline operations.

Honeywell's core offering is the Experion® Process Knowledge System (PKS), which includes a worldclass SCADA system that drives critical information to your pipeline operations team while automating data logging and processing. Our SIL3-rated Safety Manager, built on proven

Quadruple Modular Redundant (QMR®) technology, tightly integrates with SCADA alarm and events capabilities, as well as fire & gas, emergency shutdown and burner management systems throughout your pipeline.

Experion PKS is scalable to address the requirements of the largest pipelines. Where multiple-server SCADA is required, such as at complex sub-stations, flexible and secure operations are enabled with Honeywell's patented Distributed System Architecture (DSA).



RTU2020 plus Experion SCADA: Reduce monitoring and diagnostics from hours to minutes



Enterprise Management

- Enterprise application integration
- Decision support
- CMMS implementation
- Consulting services
- Pipeline capacity e-trading (nominations and scheduling)



Operations Management

- Operations and performance management
- Reliability and compliance management
- Simulation and operator training and effectiveness
- Integrated alarm and event management
- Leak detection and pipeline dynamic modeling



Automation and Control Systems

- SCADA and RTU
- PLC, DCS and safety systems
- Smart metering and meter data management
- Physical and cyber security
- Instrumentation and measurement



Implementation, Skids and Pipeline Equipment

- Automated pressure reduction and flow control systems
- Custody transfer metering and electronic flow measurement
- Gas treatment, gas quality analysis, odorizing systems, gas flares, and fire and gas detectors
- Equipment rooms, control rooms, e-house, and metering stations
- Telecommunications and electrification
- ICSS, AMCS



Services

- Project engineering and consulting
- Training
- Optimization and benchmarking services
- Lifecycle maintenance and migration
- Control Room design and job complexity analysis
- Cyber security

HONEYWELL—THE MOST ACCURATE METERING AND REGULATING SOLUTIONS WITH A GLOBAL INSTALLED BASE

150+
years of history

500,000+
Flowmeters

2,000+
Gas CV analyzers

20,000,000+
gas regulators
in the field

1,000+
gas metering skids
in city gas stations

100+
CNG stations

EXPERION SCADA — A POWERFUL SOFTWARE PLATFORM

200+
transmission pipelines SCADA

11,000
installations of Experion worldwide

150,000+
kilometers of pipelines
monitored world-wide

15,000+
SIL safety-rated systems
worldwide

MERCURY— FINEST PRECISION INSTRUMENTATION

500,000+
electronic correctors
installed in North America

45,000+
wireless cellular pulse data loggers
and gas pressure recorders

100
top North America gas distribution
companies are our customers

DISCOVER BETTER PERFORMANCE THROUGH DIGITAL INTELLIGENCE

Honeywell's Digital Suites combine proven expertise in O&G pipelines and storage with our leadership in safety and performance.

Utilizing Digital Suites technology, you can increase product transport performance and asset availability up to 5%. Midstream players can achieve higher uptime and improved capacity utilization through better operating and nominations decisions with six new software suites based on proven technology.

- Operational Data—analyze a secure archive of your pipelines data to make your next decision a better decision.
- Equipment Effectiveness—ensure safe operations and process reliability of your pipelines and storage assets.
- Operations Excellence—act in real-time to minimize cost and maximize the uptime of your midstream assets.

- Process Safety—know the health and performance of your midstream assets and take smarter action.
- Operations Surveillance—enable your people to plan, perform, and optimize midstream operations.
- Operational Performance—discover risks, opportunities and collaborate across your integrated operations.

LOCALLY INSTALLED TECHNOLOGY

Today, North America's 100 largest natural gas utilities turn to Honeywell Mercury product line. In fact, Mercury is the largest gas electronic corrector manufacturer in the world. With the acquisition of Elster, Honeywell is

the global leader for EVCs with high shares in Europe and North America.

PROVEN MEASUREMENT & CONTROL

No other control and instrumentation supplier has more experience than Honeywell. From upstream production, to transmission, storage and distribution, we understand all facets of the industry. Our company partners closely with industrial, commercial and gas distribution customers to provide the right measurement and control solutions, and accurate custody transfer metering and flow measurement, at every stage of your operations.



LEAN CAPITAL PROJECTS

Using Honeywell products and solutions, you can optimize your gas assets, and increase uptime and productivity while you keep your costs under control.

We know you are challenged daily with complex projects that are increasingly risky. For this reason, Honeywell has revolutionized oil and gas automation and safety projects, and achieved capital savings by as much as 30% by taking automation off the critical project path.

Parallel engineering and standard cabinet design along with three enabling technologies—Cloud Engineering, Universal Channel Technology and Virtualization—are key elements of Honeywell's Lean automation engineering methodology, LEAP.™

LOWER CAPITAL AND OPERATING COSTS

With Honeywell's Experion PKS, every aspect of your operations can be fully integrated to eliminate unwanted downtime and improve performance over the lifetime of your assets. Together with our advanced software, smart instrumentation, accurate metering and regulating portfolio, and comprehensive range of products and systems for inventory management, pipeline, and terminal operations, Honeywell is transforming operations and business performance for oil and gas companies all over the world.

DIFFERENTIATED SCADA TECHNOLOGY

Honeywell helped create the SCADA industry, being both a pioneering SCADA application provider and a computer manufacturer. We have



continuously evolved the SCADA application and still invest heavily in R&D each year. Honeywell's SCADA leads the industry in key aspects such as HMI ergonomics, as well as an integrated cyber pipeline, and safety and security solutions.

SEAMLESS LEGACY SCADA MIGRATION

When your legacy SCADA becomes challenging to support or is restricting your business model, turn to Honeywell for seamless migration solutions for all legacy SCADA systems. Our advanced SCADA technology provides many advantages over legacy SCADA systems, including improved business flexibility, better compliance and lower costs.

Honeywell regularly migrates competitors' SCADA platforms to

Experion SCADA. We provide custom applications and integration with other applications and systems, and can bring this experience to benefit your enterprise.

DISCOVER SAFER AND MORE SECURE OPERATIONS

Honeywell's Experion PKS offers a SCADA architecture enabling seamless integration of pipeline control, SCADA, safety systems, and fire & gas detection. This integration provides multiple benefits, including reduced project risk and operational complexity; lower maintenance and operating costs; increased operator effectiveness; and safer, more secure operations.

By focusing on the operator, Honeywell brings Abnormal Situation Management (ASM®) Consortium best practices in delivering excellence in operational readiness to meet or exceed API RP 1165, 1167 and 1168 for SCADA displays, alarms and control room management.

Honeywell offers best-in-class technology and expertise for industrial fire and gas. Our solutions are based on a layered approach to safety, encompassing both process and system technology, and the people who interact with that technology. We provide systems enabling you to monitor areas where hazardous levels of explosive or toxic gas may become present, and provide early warning of the build-up of gas or fire before it becomes a hazard. An integrated approach to safety and security based on "defense-in-depth" with independent layers of protection is fundamental to industry best practices.

WORK IN PROCESS MONITORING WITH CCTV SOLUTIONS

Security from Day One

Honeywell's Experion PKS and Experion Industrial Security platforms offer a unified approach to control, safety and security. Video surveillance, access control and perimeter detection are tightly integrated with

alarms and events raised in process and safety systems for intelligent, coordinated responses. A common, consistent operator interface and improved situational awareness results in better, faster decisions.

Honeywell provides cost-effective, round-the-clock, third-party intrusion (TPI) security along the right-of-way by monitoring perimeters using standard telecommunications fiber optic cable or in combination with video surveillance.

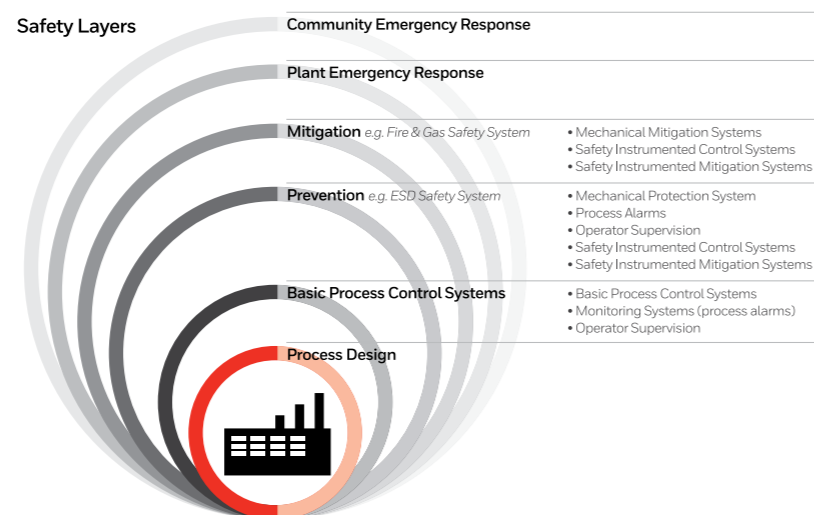
As an extension to control, safety and security, Honeywell can provide leak detection and condition monitoring of pipelines and sites. Whether the pipeline is small or large, Honeywell can bring different technologies to monitor situational parameters and integrate the information for operations. Honeywell offers this solution in



Safety Manager

partnership with leading technology manufacturers to help detect, classify and locate threats before they come within damaging range.

Across the asset and across the globe, Honeywell's solutions enable facilities to do more with less, and enjoy safer, more reliable operations.



COMPLETE CYBER PROTECTION

As new threats emerge and the cyber security landscape evolves, Honeywell is your experienced and trusted partner to help protect the availability, reliability and safety of your control system assets, as well as safeguard people and processes involved in all facets of your operation. Honeywell's Industrial Cyber Security Solutions are specifically designed to defend your industrial automation and control systems, and plant operations. These solutions leverage our process control and cyber security experience, expertise and advanced technology to provide industry-leading offerings. Their value is extended through strategic relationships with leading technology players.

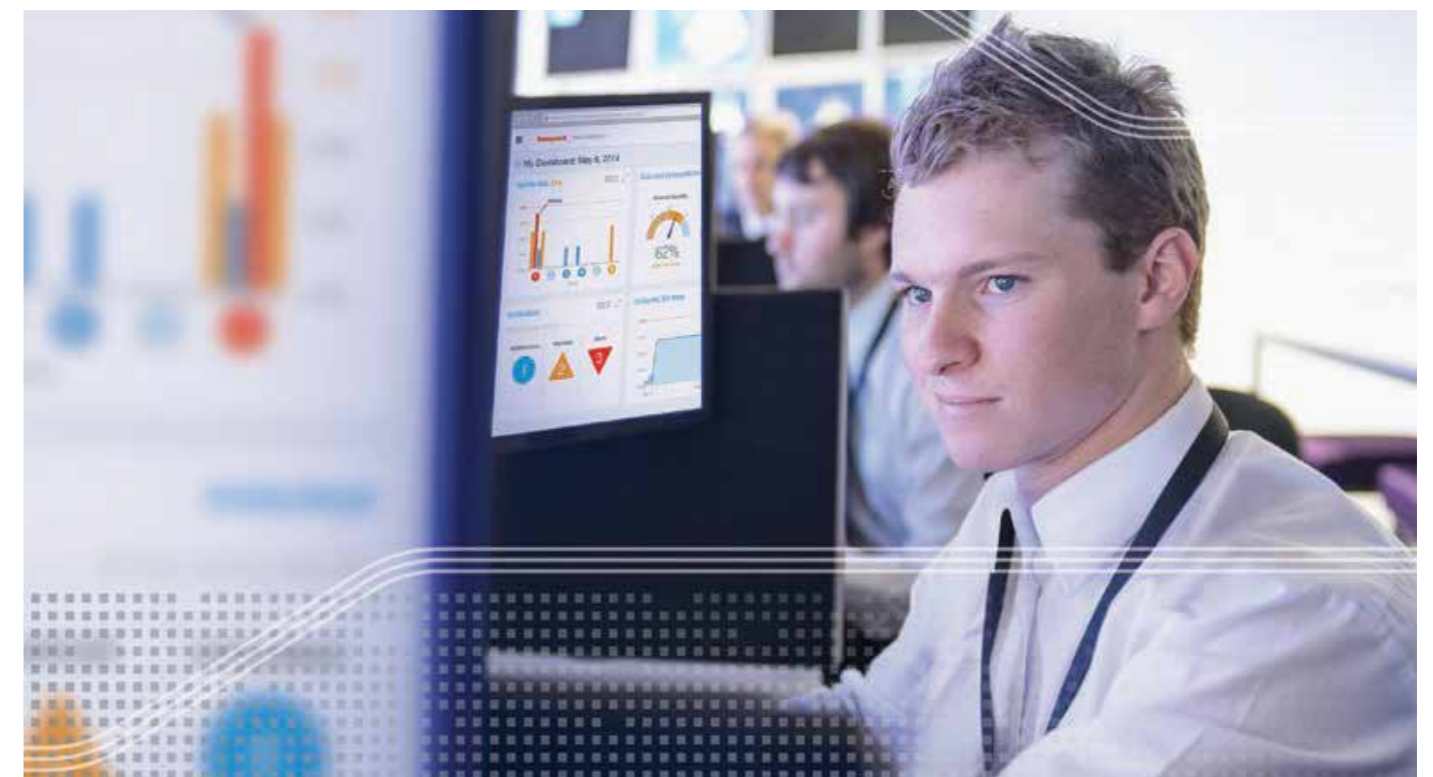
Honeywell has a 50-year history as a leader in industrial safety and security, and as an innovator in the field of plant automation. Years of providing industrial cyber security



solutions have resulted in proprietary methodologies, best practices, and a comprehensive understanding of cyber security requirements for the process control domain.

The Honeywell Cyber Security Architecture and methodology support ISA99 and IEC 62443 concepts, continually addressing cyber security

throughout the automation and control system lifecycle—from design and implementation to commissioning—with vendor-agnostic solutions that include security assessments and audits, architecture and design, network security, endpoint protection, situational awareness, and response and recovery.



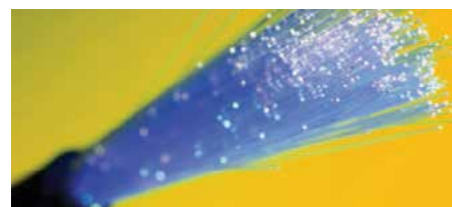
DISCOVER INTEGRATED CONTRACTING, OPTIMIZED CONTROL ROOMS AND ELECTRICAL CONTROLS

Honeywell handles contracting for remote instrument enclosures, buildings and telecommunications equipment including design, engineering, installation, commissioning, and security packages.

INTEGRATED CONTRACTING FOR TELECOMMUNICATIONS EQUIPMENT

Honeywell takes on the smallest and largest of telecommunications and telemetry contracts, either as part of the SCADA contract or in parallel with it.

We maintain specialist engineers and centers of excellence for telecommunications and security to ensure the least-risk project execution and full life-of-asset support. Honeywell both manufactures communications equipment and is an integrator of other manufacturers' telecoms equipment.



Fiber optic cable

STANDARDIZED ENCLOSURES AND OPTIMIZED CONTROL ROOMS

Honeywell provides a range of services for design and construction of fixed and demountable control rooms and equipment enclosures. Design includes consulting on ergonomics and operator workload, and job design and compliance checking. Honeywell

handles contracts for full control room and equipment enclosure construction. We have developed standardized and optimized designs for popular equipment room and demountable control rooms.

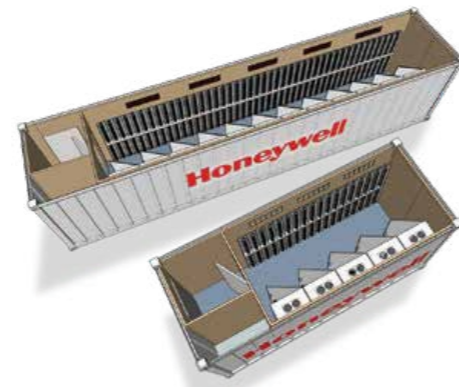


HVAC air ducts

INTEGRATED ELECTRICAL CONTROLS AND CONTRACTING

Pipeline assets are large consumers of electrical power and benefit from tight integration of electrification with the main operations. Honeywell provides electrical monitoring and control systems (EMCS) both in stand-alone form and integrated or even embedded into the SCADA system. Our solutions control and optimize co-generation and emergency generation, load shedding and electrical distribution.

Popular standards such as IEC 61850/608705 and PROFIBUS* are used to integrate Honeywell's SCADA/ECMS with IEDs, switchgear

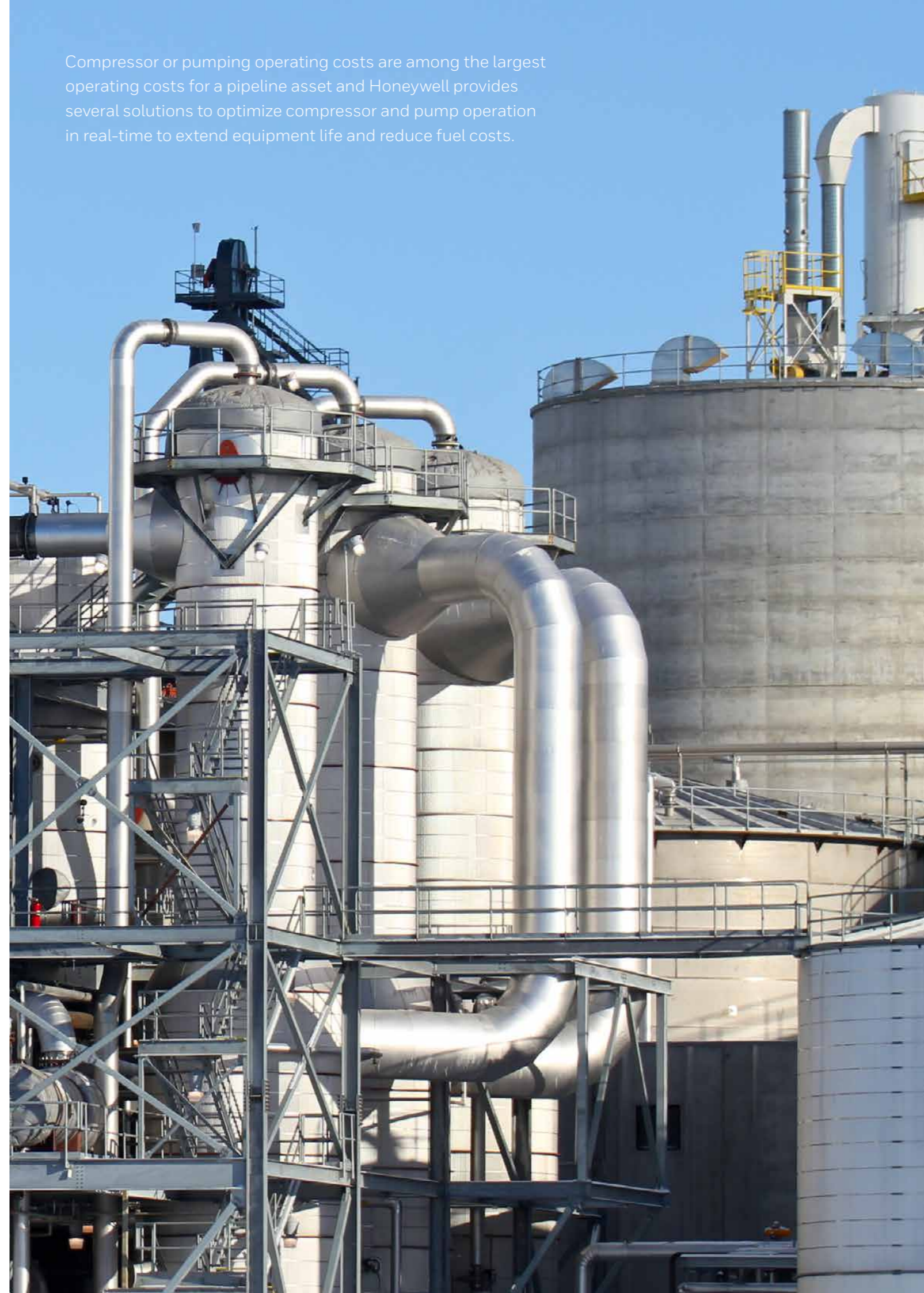


Standardized enclosures

and other electrical equipment. Our high-speed controllers are also enabled with the same integration standards to perform control of generation, load and distribution.

Honeywell's HMI and controllers integrate with all makes of MCC devices using a range of industry protocol standards to ensure best coverage of all features offered by your MCC component manufacturers. Templates are used to streamline engineering and to simplify control room operations through API RP1165 compliant displays. Honeywell handles contracting for electrical, instrument, and controls and telecommunications (EICT) contracts, including those with E-House enclosures.

Compressor or pumping operating costs are among the largest operating costs for a pipeline asset and Honeywell provides several solutions to optimize compressor and pump operation in real-time to extend equipment life and reduce fuel costs.





INTEGRATED COMPRESSOR CONTROLS

Honeywell is a specialist manufacturer of compressor and turbine controls, and other spinning and reciprocating equipment. We can either provide compressor controls using the high-speed modules from the Experion Controller family or work with your preferred compressor controls specialist or manufacturer. In every case, the compressor controls can be tightly coupled with the main station controllers in the compressor stations. This includes ESD, fire & gas detection and security systems.

Compressor or pumping fuel costs are amongst the largest operating costs for a pipeline asset and Honeywell provides several solutions to optimize compressor and pump operation in real-time to extend equipment life and reduce fuel costs.

BETTER ASSET MANAGEMENT

Honeywell manufactures and integrates asset management solutions for both instrument and equipment assets. Our company provides technology for sensing and collecting equipment health status and optimizing the workflows for alerts and actions with integration to popular CMMSs such as SAP and Maximo. Honeywell's Field Device Manager (FDM) expertly handles the configuration and management of smart instruments on popular digital buses such as HART,* PROFIBUS and

FOUNDATION* Fieldbus. Our solutions can remove cost, improve equipment service availability and lifespan, and streamline maintenance activities.

EXPERT SUPPORT AND LOCAL SERVICE

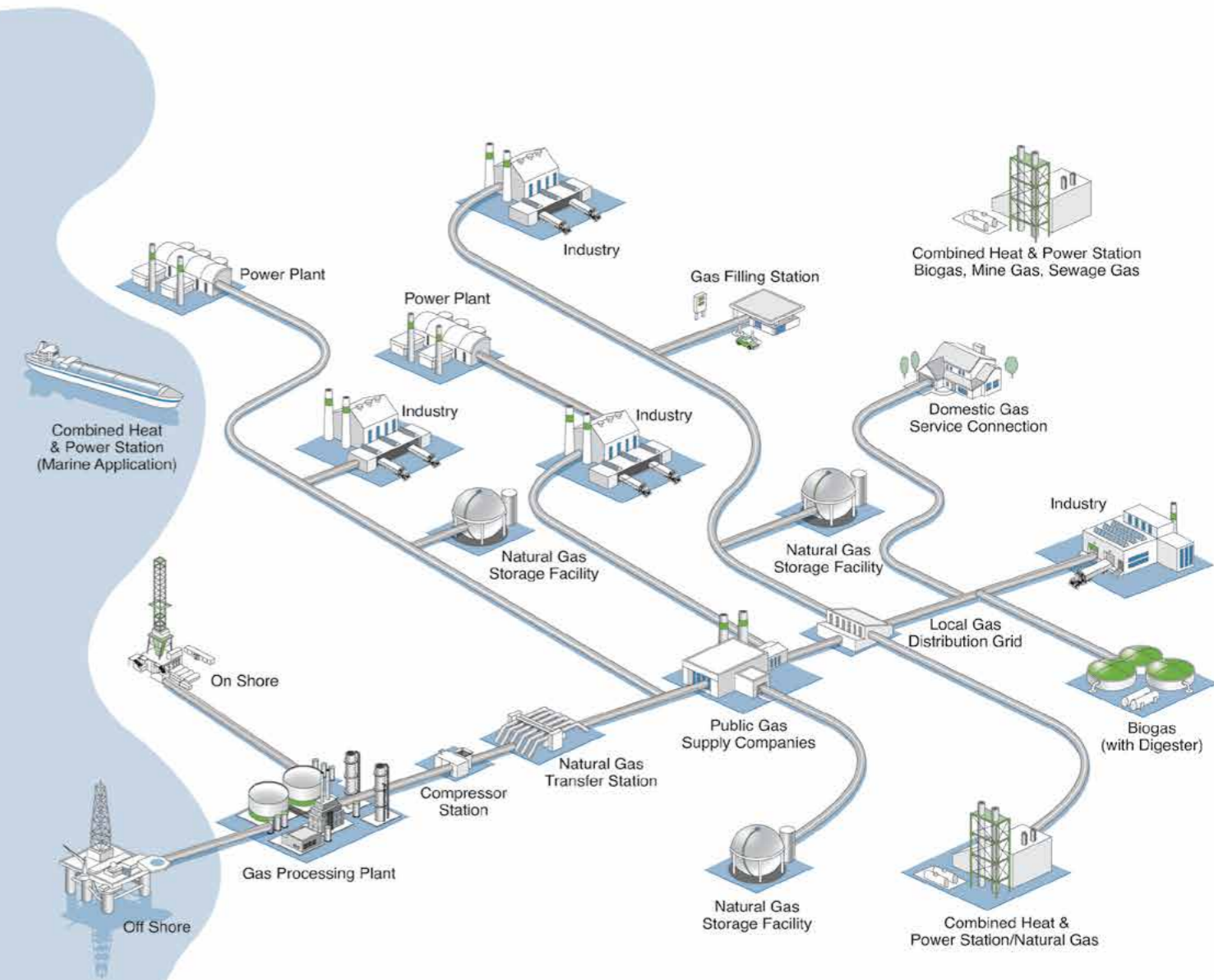
Our midstream industry experts assist with developing standard operating procedures (SOPs) for metering station installations, validation routines, calibration procedures, and more. Integrated solutions with control or SCADA platforms and data collection systems help you interpret diagnostics and troubleshoot operating problems.

YOUR COMPLETE PARTNER

Recognized for long-term reliability and performance, lowest total cost of ownership, outstanding technical training, and superior field support and customer service, no other manufacturer offers more for the gas industry than Honeywell. With the most complete portfolio of industry-leading, engineered solutions across the entire pipeline system, Honeywell has the expertise, products and systems that will enable you to exercise full control of your regulating and measuring needs. And best of all, we supply on-time so your operations can continue to run smoothly.

DISCOVER INTEGRATED SOLUTIONS AND TECHNOLOGY

Smart, Integrated Solutions that Deliver Optimum Performance for Your Midstream Enterprise.



DISCOVER OUR COMPLETE PIPELINE PORTFOLIO

	FIELD INSTRUMENTATION			SECURITY & SAFETY	CONTROL & MONITORING			STATIONS & EQUIPMENT					
	Pressure, Temperature and Level Transmitters	Wireless Networks and Devices	Flow Meters	Access Control, Enclosure third-party intrusion (TPI), Pipeline TPI, SIL-rated ESD, F&G, Corrosion Solutions, Safety Valves	Telemetry & Telecoms Contracting and Integration	Experion SCADA, RTU2020, C300 Hybrid DCS, SM & HC900 Safety System, MasterLogic PLC	Advanced Software: Simulation, Leak Detection, Pipeline/ Nominations Scheduling, Measurement and Verification, Real-Time-Optimization, Operations Planning and Management	Smart Metering and Telemetry (Mercury)	Pressure Control and Safety: Equipment and Skids	Metering and Metering Skids	Control Rooms, Local Equipment Rooms, E-House	Terminals Equipment including Loading Gantries, Presets	Other Stations: Full Metering Stations, Storage Stations, CNG Stations, Wellhead Skids
UPSTREAM	●	●	●	●	●	●	●	●	●	●	●	●	●
LNG TERMINALS	●	●	●	●	●	●	●	●	●	●	●	●	●
COMPRESSOR STATION	●	●	●	●	●	●	●	●	●	●	●	●	●
GAS PRESSURE REDUCING SKIDS	●	●	●	●	●	●	●	●	●	●	●	●	●
OTHER PIPELINES STATIONS	●	●	●	●	●	●	●	●	●	●	●	●	●
GAS STORAGE & TANK TERMINALS	●	●	●	●	●	●	●	●	●	●	●	●	●
CITY/REGIONAL/ LDC GAS SUPPLIERS	●	●	●	●	●	●	●	●	●	●	●	●	●
INDUSTRIAL AND COMMERCIAL NG CONSUMERS	●	●	●	●	●	●	●	●	●	●	●	●	●
GAS POWER STATIONS	●	●	●	●		●	●		●	●			●
GAS FILLING STATIONS				●		●				●			●
BLOCK HEAT AND POWER PLANT NATURAL GAS	●	●	●	●		●	●	●	●	●	●		●
RESIDENTIAL CUSTOMERS			●					●	●				
BIOGAS	●	●	●	●		●	●			●	●		●



Lower Risk. Optimized Performance.



Follow HPS on LinkedIn

For more information

To learn more about Honeywell's Oil & Gas Pipeline Solutions, visit www.process.honeywell.com or contact your Honeywell account manager.

Honeywell Process Solutions

2101 City West Blvd Houston, Texas 77042
Honeywell House, Arlington Business Park
Bracknell, Berkshire, England RG12 1EB
Shanghai City Centre, 100 Zunyi Road
Shanghai, China 200051

www.process.honeywell.com

Experion[®] QMR[®] SmartLine[®] ASM[®] and Elster[®] are registered trademarks, and LEAP[™] is a trademark of Honeywell International, Inc.

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

BR-15-28-ENG | 441D | 07/22
© 2022 Honeywell International Inc.

Honeywell