

An aerial photograph of an industrial facility, likely a refinery or chemical plant, with various storage tanks, pipes, and buildings. The facility is situated in a green field with a body of water in the background. Overlaid on the image are several digital graphics: a large circular radar-like pattern in the center, several rectangular boxes containing data visualizations like bar charts and line graphs, and a network of yellow lines in the bottom left corner. The Siemens logo is in the top right corner.

SIEMENS

PROCESS INSTRUMENTATION

# A window into **your pipelines**

Greater midstream transparency starts with Siemens field instruments

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Production from both conventional and unconventional oil and gas plays across North America continues to rise to record levels. However, for companies across the supply chain to capitalize on the economic benefits afforded by these resources, midstream infrastructure – most notably pipeline networks – will have to grow immensely.

With an extensive portfolio of products and technologies spanning the entire midstream value chain, Siemens is helping operators address these challenges with an integrated approach that we call Pipelines 4.0. Process automation continues to emerge as a powerful lever for midstream and pipeline companies who are increasingly facing pressure to reduce operational costs, which makes automation an important step in the Pipelines 4.0 approach. However, in order to benefit from automating the transportation and storage of hydrocarbons, companies require process transparency.

An array of high-performance field instruments is required to monitor the health and efficiency of midstream infrastructure – from pumping/compressor, valve, and metering stations, to above- and below-ground storage tanks. This includes digitally-enabled flow, pressure, temperature, level and positioning products, as well as corresponding control and communication solutions – all of which must meet stringent standards set by the oil and gas industry.

Measurement instrumentation must be designed with connectivity and IIoT in mind. It must also be capable of withstanding the tough environmental conditions encountered by pipelines that traverse thousands of miles of harsh terrain. Serviceability is critical as well, since solutions located outside control rooms are usually in remote places – even buried or underwater. In such cases, technician service calls can be very costly, especially if system downtime is involved.

To address these challenges, instrumentation designed for midstream applications should incorporate features such as remote-mounted transmitters, heavy-duty dust-tight enclosures, and non-contacting sensors. Products must utilize solid-state components that are engineered, tested, and ruggedly built for reliability, complemented by built-in capabilities for preventive and predictive maintenance. This allows for remote diagnostics, which can help determine the root cause of a potential problem before a technician is

dispatched. Once onsite, technicians' jobs are easier, and repairs can be completed quickly with replacement components that are self-configuring and easy to replace.

With pipelines, it is important that operators utilize open and scalable automation solutions with uniform hardware and software interfaces to ensure consistent data management and compliance with global standards. Components must be interoperable with legacy systems and those from other vendors. Open systems facilitate "plug-and-play" designs for fast, flexible scalability, which is important as pipeline infrastructure grows and automation needs evolve over time.

## Field Instruments

### Ultrasonic Flow:

SITRANS FS230 clamp-on ultrasonic flow meter

### Coriolis Flow:

SITRANS FC300 Coriolis flow meter

### Pressure

SITRANS P320 pressure transmitter

SITRANS P420 pressure transmitter

### Temperature

SITRANS TS500 temperature sensor

### Positioner

SITRANS PS2 valve positioner

### Level

SITRANS P320 pressure transmitter for level

SITRANS LR250 level transmitter

SITRANS LG250 level transmitter

SITRANS CLS 200 contact level transmitter

SITRANS LVL 200 contact level transmitter

### Legal Manufacturer

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