Wireless instrumentation is creating a lot of enthusiasm within industry today, full of opportunities and possibilities for new and exciting process measurement.

The business benefits of industrial wireless solutions are clear; less investment in infrastructure while enabling greater process insights into the plant operations. In fact, once the infrastructure is in place, wireless sensors scale very easily and flexibly across the site, enabling measurements that were previously too difficult or uneconomical to implement.

ISA100.11a provides a robust security mechanism to continuously ensure the safety of various system operations. Communications in the ISA100.11a network are protected using Advanced Encryption Standard (AES) which was approved by NIST for protecting secret information. Only devices that have legitimate keys (called join keys) are admitted to join the operational network. Users can install such join keys securely into devices during setup. The AES key for the communications are automatically derived from the join key and updated periodically. The secure key derivation method used in ISA100.11a forms a trust chain and makes the operational network secure in the entire system life cycle.

Security
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Reliability
Reliability is dependent on the types of applications to be supported. Mesh networks with multiple redundant paths are ideas for processes requiring low speed communication updates, while star networks excel in high speed monitoring of assets.

Conclusion
ISA100.11a takes the best wireless technology available today. One integrated, multi-protocol, multi-functional wireless network fully supports your plant and processes. Apply ISA100.11a to extend the lifecycle benefits of your wireless network, protect your investment and maximize the full potential of wireless, ensuring that you only need to deploy your wireless network once.
A unique combination of two technologies has enabled true end to end, wireless digital sensing. DPharp digital sensing with ISA100.11a, the new industrial standard for wireless sensor network, has brought about a truly unique product: Advanced high precision digital sensing, reduced engineering and commissioning with the flexibility to expand your wireless sensor network to meet future demand.

This innovation represents Yokogawa’s commitment to continue delivering unsurpassed leading edge solutions to industry. Reliable, secure, flexible and intuitive, new wireless transmitters simplify all aspects of wireless deployment, management and operation while delivering excellence as standard.

The unique battery housing compartment and battery pack within wireless transmitters allows it to be exchanged in the hazardous area. The battery pack further enables convenient access to the internal cells so that they may be replaced as necessary, minimizing waste and cost, while making the battery replacement process as efficient as possible.

High capacity Lithium/Thionyl Chloride batteries have excellent power versus temperature characteristics, along with a long in service life that makes them suitable for use in industrial environments.
The monitoring and control of inventories are critical today in realizing safe, efficient, continuous plant operations. Too little and you risk production, too much and you increasing your operational costs.

However, it isn’t without its challenges since loading piers and tank farms tend to be distributed over large areas, making them expensive to fully instrument. Yokogawa’s wireless solutions are the ideal choice for such applications, allowing you to minimize infrastructure cost while maximizing the surveillance of these valuable inventories.

Wireless gateway can be strategically configured for the asset coverage while wireless devices deployed within the network improve asset visibility and quality of measurements. Both tank farms and loading piers can benefit from wireless pressure, level, and temperature profiling for efficient inventory management and control.

- Minimized infrastructure costs / investment
- Improved surveillance of inventories
- Improved quality of measurements
- Efficient inventory management and control

One of the most difficult challenges within the upstream industry is the remote monitoring of assets such as satellite wellheads, production platforms and pipelines, all of which are vital to the flow of hydrocarbons from production fields around the world.

At Yokogawa, we are able to offer you a unique combination of technologies, seamlessly integrated into a solution to address these upstream challenges. At the asset level, our wireless networks and sensors enable efficient monitoring while optimizing power and communication requirements, and so maximizing measurement availability. These wireless measurements are then able to be integrated with wide area network, bringing the information back to a control room where it is then conveniently visualized and managed by Yokogawa SCADA system.

Whether the measurement is made for operational gain or safety purposes, Yokogawa is able to deliver an efficient customized solution; from measurement to asset supervision.

- Total solution from wireless measurement to supervision
- Optimization of power and communication to maximize measurement availability
- Improved supervision of assets for operation and safety monitoring
Refining and petrochemical plants may not seem a target place for wireless network deployment since the established plants are already well instrumented. However, these plants are facing severe environmental regulations at full operating capacity.

Some measurements are never implemented due to the competing demands of cost versus performance. Vacuum columns and flare stacks are good examples of where the cost to support these elevated applications become prohibitive and where measurements are needed to meet environmental regulations.

Yokogawa’s industrial wireless sensors give you opportunities to redress these measurements that were not feasible with wired systems. Eliminating operational blind spots, improve production efficiency, safety, asset management and environmental compliance.

- Greater processes insight, less blind spots
- Improved operational efficiency

Modular and rotating equipment bring with them several challenges for wired instrumentation, namely, the cabling of power and output signals. These are normally executed using slip ring contacts in rotating equipment and connectors for modular systems.

This is where wireless instrumentation offers the most benefits. The wireless sensor network solution will free you from all the limitations of wired instruments; slip ring contacts and connectors are prone to wear and tear.

With no moving parts or complex connectors, ISA100.11a wireless transmitters enable you to do more with less, improving your assets visibility and overall reliability. The simplest decision you can make to improve your processes today.

- No moving parts or complex connectors required
- Reliable wireless instrumentation for pressure & temperature measurement
- Wireless gateway provides seamless support for up to 50 wireless devices
PRM (Plant Resource Manager) is a key platform for the Yokogawa VigilantPlant Asset Excellence initiative. An online and centralized automation asset management system helps both operators and maintenance personnel prevent downtime and reduces TCO in your plant.

FieldMate is built upon the robust FDT framework and DTM device manager technology. FieldMate provides a convenient graphical user interface that simplifies complex product parameters and configurator. FieldMate now supports our wireless solution and simplifies the management of wireless security and the provisioning of your wireless devices.

Control and application system

YFGW710 embeds the Modbus communication function enabling the connection with existing major host systems by the YFGW communication package featuring the Field Wireless Configurator and Management Tool. The measurement data of wireless field devices is sent and displayed on the console panel you already become accustomed to now. Communication with CENTUM VP is more efficiently realized by the YFGW communication package. YFGW710 also supports the OPC interface by “Field Wireless OPC Server,” and the PC server displays the measurement data of wireless field devices on OPC client application. Yokogawa SCADA system is completely web-based and allows the customer to easily and intuitively navigate through the operator displays in the same manner as a web browser. Furthermore, the human-machine interface is designed for web deployment and delivers all the benefits of advanced web technology. Daqstation provides local monitoring and data acquisition, suitable for small applications.

Connecting to Host System

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