



# 100Wireless

## Standards

Certification

Education & Training

Publishing

Conferences & Exhibits



## ISA100: Wireless Systems for Industrial Automation

Developing a Reliable, Universal Family of Wireless Standards

*Setting the Standard for Automation™*

**W**ireless sensor systems have the potential to help industry use energy and materials more efficiently, lower production costs, and increase productivity. Although wireless technology has taken a major leap forward with the boom in wireless personal communications, applications for industrial field device systems must meet distinctly different challenges.

That's where the ISA100 standards committee, Wireless Systems for Industrial Automation, comes in. The committee was formed in 2005 to establish standards and related information that will define procedures for implementing wireless systems in the automation and control environment with a focus on the field level. The committee is made up of over 400 automation professionals from nearly 250 companies around the world, lending their expertise from a variety of industrial backgrounds.



## ISA100: Backed by Expertise, Heritage, and History

ISA has been the industry's trusted source for standards, certification programs, education and training, publications, and conferences for over 60 years.

### By the Numbers

ISA has nearly 30,000 members worldwide and **thousands** of industry professional volunteers working on our standards. We have more than **140** committees and working groups developing standards in key areas of industrial automation ranging from the

safety of electrical equipment in hazardous locations to cyber security of automation and control systems. We've developed **hundreds** of standards, and our technology is estimated to have been used in over **1 billion** products worldwide.

### An Open Process

As an accredited member organization of the American National Standards Institute, ISA works with standards bodies around the world to develop and hone our standards methodology. Our process, and our technology, is open so that end users can have the best possible choices for interoperable products. There are no membership fees to gain access to information related to the development of our standards.

The ISA100 standards are being cooperatively designed by the best industrial experts in the world, to make sure that they fit the needs of the end user. We're bringing together experts in wireless technology, instrumentation, security, and a wide range of industrial end use applications—which means that end users can be confident in the reliability, integration, industrial usage, and security of the technologies we're supplying.



# ISA100 Family of Standards: One-Stop Standardization

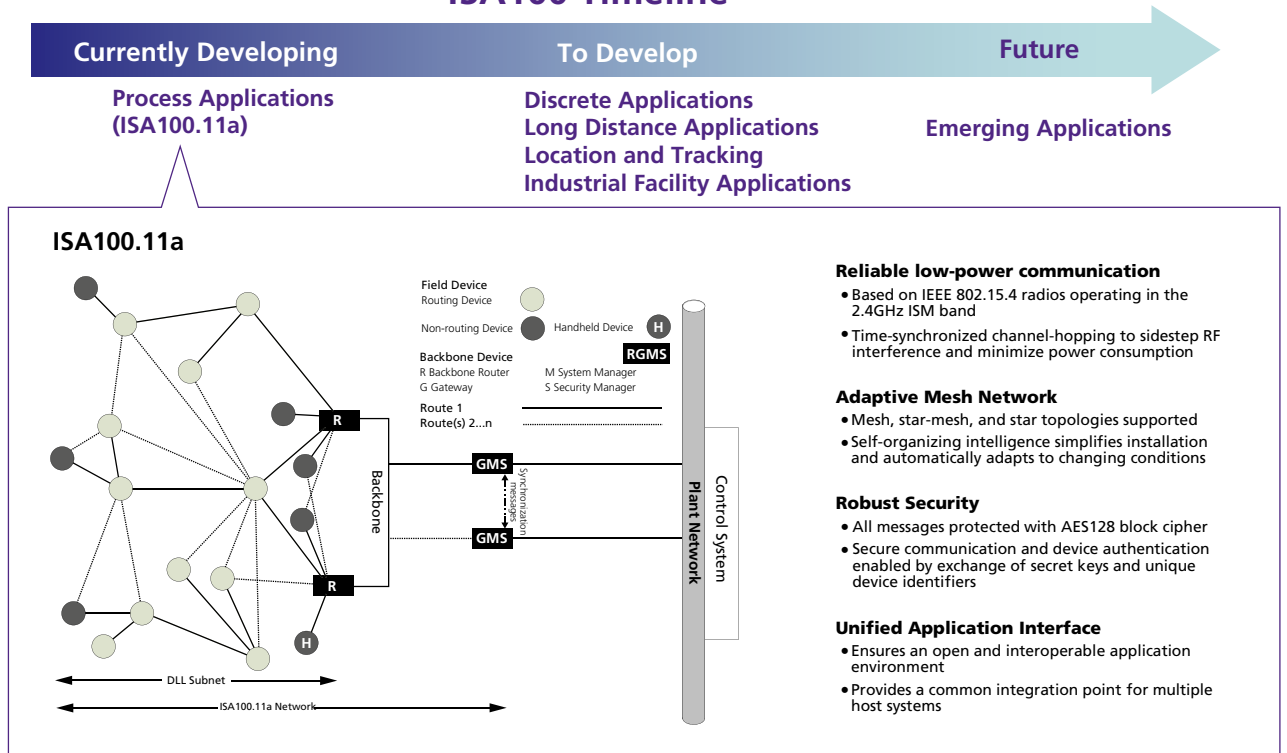
The ISA100 family of standards is being designed to meet your plant-wide needs today and into the future. For once, you'll actually be able to accommodate all of your plant processes based on just one integrated series of standards!

This means the ISA100 family of standards is being designed from the ground up to accommodate more than just one focus area—providing one integrated series of standards for many applications.

## Interest areas identified to date for the ISA100 family of standards include:

- Process Automation (Process Focus)
- Factory Automation (Discrete Focus)
- Transmission and Distribution (Long Distance Focus)
- RFID (Industrial Tagging Focus)

## ISA100 Timeline

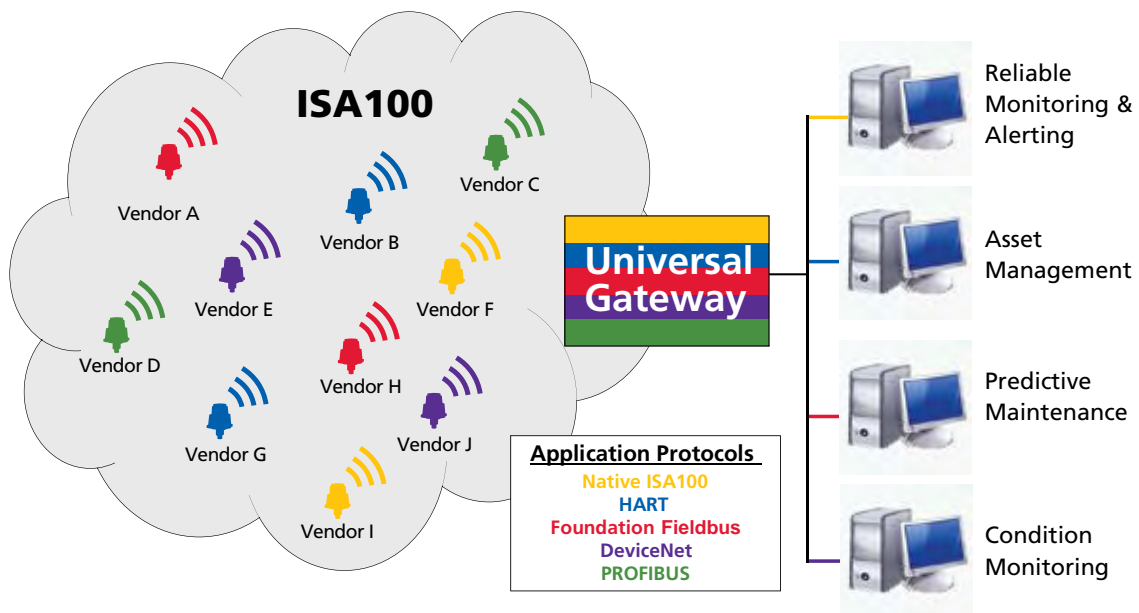


# ISA100 Universality: The Power of One

ISA100 will allow you to deploy a single, integrated wireless infrastructure platform for your plant. The standard network will simultaneously communicate with many existing application protocols wirelessly throughout your plant. This includes protocols such as HART®, FOUNDATION™ Fieldbus, Modbus®, Profibus®, Common Industrial Protocol (CIP™), and more. The ISA100 wireless network will be optimized to send all these protocols wirelessly, preserving your existing protocol investments and protecting your future protocol needs. It's all about the network and the fundamental design to meet ALL your wireless needs.

Imagine the simplicity you'll bring to your work with:

- **ONE** technology to learn
- **ONE** technology to maintain
- **ONE** technology to operate
- **ONE** security system to manage
- **ONE** set of infrastructure



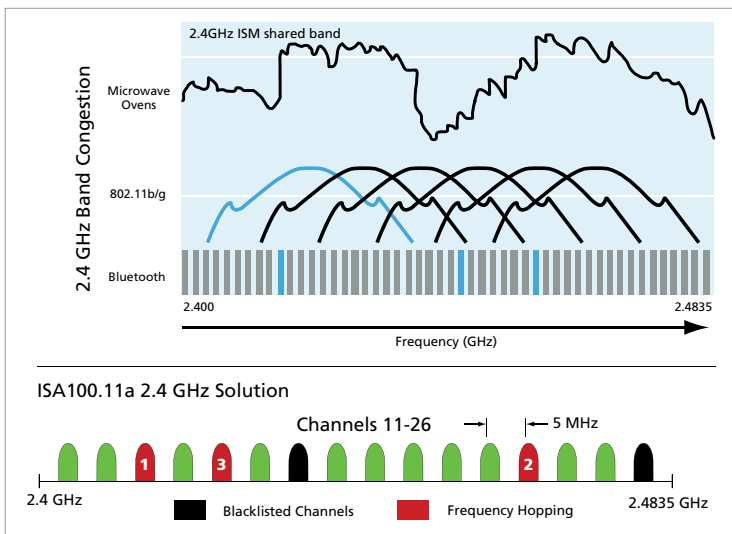
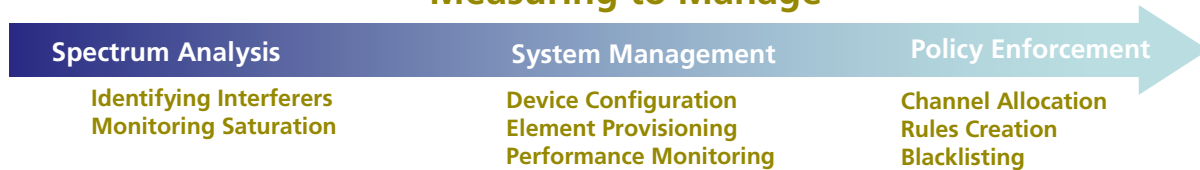
**Many Applications, Many Protocols,  
A Single Wireless Network**

# ISA100 Coexistence: Providing Peace of Mind

The ISA100 family of standards is designed with coexistence in mind, bringing peace of mind for the end user. We know that customers have other wireless solutions installed today and have the need for any future system to co-exist with these installed systems. So, the standards will feature technology to ensure the best performance possible in the presence of other wireless networks.

## Ensuring performance and scalability with spectrum monitoring and device management

### Measuring to Manage



#### The Problem: Sharing The Spectrum

Radios operating in the 2.4GHz ISM band must share frequency in presence of other RF systems

#### The ISA100.11a Solution:

- Channel Blacklist
  - Automatically avoid congested channels
- Frequency/Channel Hopping
  - Minimize strain on any one channel by spreading signal over entire available band
- Direct Sequence Spread Spectrum
  - Energy spread so signal looks like noise to other systems
- Dynamic Power Control
  - Helps limit interference
- Low Duty Cycle Operation
  - Short time-synchronized communication reduces congestion
- Clear Channel Assessment
  - Avoids collisions with other radio systems
- Frequency Selection
  - Force operation on specific channels

## ISA100 for Process Automation: It's Coming!

The ISA100 initial standard is currently in development and focuses on wireless monitoring and alerting needs for the process industries. ISA100 for Process Automation is intended to provide reliable and secure operation for non-critical monitoring, alerting, supervisory control, open loop control and closed loop control applications.

The standard defines the ISO stack, system management, gateway, and security specifications for low data rate wireless connectivity with fixed, portable, and moving devices with no battery or very limited battery consumption requirements. The standard is scheduled for release in early 2008.

Now is the time to find out more about the ISA100 initiative, the people developing it, and the technology we're using. Visit us online at [www.isa.org/ISA100](http://www.isa.org/ISA100) to stay up to date on the latest news from the committee, or to volunteer your expertise.

So, get involved or just stay informed on the only industrial wireless standard your plant will ever need. Designed by world renowned experts in an organization known for delivering industrial standards for over 60 years—It's the ISA100 Industrial Wireless Family of Standards.



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Founded in 1945, ISA ([www.isa.org](http://www.isa.org)) is a leading, global, nonprofit organization that is setting the standard for automation by helping over 30,000 worldwide members and other professionals solve difficult technical problems, while enhancing their leadership and personal career capabilities. Based in Research Triangle Park, North Carolina, ISA develops standards; certifies industry professionals; provides education and training; publishes books and technical articles; and hosts the largest conference and exhibition for automation professionals in the Western Hemisphere. ISA is the founding sponsor of the Automation Federation ([www.automationfederation.org](http://www.automationfederation.org)).