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# Ethernet on the Floor

There is a proper time and place for industrial communications deployment

By Mark Ford

**T**here is no doubt about it: Ethernet continues to grow from year to year throughout the automation industry, but the real issue is why aren't users adopting it at a more rapid pace?

While manufacturers have a wide assortment of issues as to why they haven't yet taken the Ethernet plunge, the most glaring reasons are control group, education and cost justification for the selected application. Proper applications will not only help create true interoperability but will provide information to all the departments that have a stake in the success of the organization.

## FAST FORWARD

- Three reasons for not adopting Ethernet are: compatibility, education, and cost.
- Three popular types of communications protocols are serial communications, Ethernet, and Modbus.
- Three reasons for not adopting Ethernet are: compatibility, education, and cost.

deterministic responses (coordinated motion, high-speed discrete, or combined control or managerial program verification), configuration, or parameter adjustments. A single end device such as a discrete I/O could go into applications where responses could vary from a millisecond to a second. The selection of an appropriate network will then work on a balance between the ability to respond in the time required as well as interoperability and user preferences. The trick is deciding what types of information the user requires. The next step is to display the correct technology in order to obtain the best return on investment.

## Top technologies

When it comes to communications, there are a few methods in industrial applications. Three popular types of communications technologies are serial communications, Ethernet, and Modbus.

Serial communications is the most common type of communications technology in industrial applications. It is a simple, reliable, and cost-effective method of communication. It is used in a wide variety of applications, from simple data transfer to complex control systems. Ethernet is a more modern and powerful communication technology. It is used in a wide variety of applications, from simple data transfer to complex control systems. Modbus is a protocol used for communication between a master and slave device. It is used in a wide variety of applications, from simple data transfer to complex control systems.

stance to 2500 psi, which with most modern cables is 200 ft. RS-232 is compatible with these standards (TU V24 V.28, and ISO RS210).

ISA-422—this defines a balanced interface with no accompanying physical connector. You will find RS-422 commonly used in point-to-point communications conducted with a dual-state driver.

RS-485—this interface resembles RS-422. It is used in multipoint applications where one computer connects with up to 32 devices.

There are two types of serial communication—synchronous and asynchronous. Synchronous transmissions in each other and usually send characters in a stream. Asynchronous transmissions, devices initially when data is not really going out, a constant flow of bits allows each device to know when to read synchronization data and when to stop.

In asynchronous communications, you do not need synchronization data and when to stop. Asynchronous transmissions, devices initially when data is not really going out, a constant flow of bits allows each device to know when to read synchronization data and when to stop.

When it comes to communications, there are a few methods in industrial applications. Three popular types of communications technologies are serial communications, Ethernet, and Modbus.

There are several different ways in which a user can employ serial communication to Ethernet. The simplest is a pure serial tunnel. In this case, Serial-to-Ethernet devices are at each end, and the information tunnels over to the Ethernet.

Applications where a manufacturer is growing power, it will be a more complex process. In this case, the Ethernet communication is used to control the process, which gives the user a more powerful and flexible system.

ISA-422  
ISO RS210  
TU V24 V.28

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**Building the Perfect Beast**  
The ISA-100 wireless use-case process reveals unique characteristics of industrial facilities

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InTech e-News is the weekly news supplement to InTech Magazine, published by ISA—Setting the Standard for Automation. Send news tips, commentary, and letters to Editor Greg Hale at [gahale@isa.org](mailto:gahale@isa.org).

## Industry news



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**Equity firms deal for TXU** As in any deal, there are winners and losers. In the case of the two private equity firms paying \$44 billion to buy out TXU Corp., the coal industry lost, and the environment won. [More...](#)

**Seeing the light with new hydrogen fuel system** Autos that can harness the sun's energy to generate hydrogen to power fuel cells may someday eliminate the ever rising prices of gasoline. [More...](#)

**Satellite engine that uses less fuel** A new prototype engine allows satellites to take off with less fuel potentially opens the door for deep space missions, lower launch costs, and more payload in orbit. [More...](#)

**Fieldbus Foundation sees watershed** The Foundation fieldbus communications protocol is maturing into an automation platform serving the process industries. [More...](#)

**Toyota heads to Mississippi to build new plant** Toyota Motor Corp. will spend \$1.3 billion to build an assembly plant in Blue Springs, Miss., just outside Tupelo in northeastern Mississippi, the birth place of Elvis Presley. [More...](#)

## InTech in print



### What's Inside:

Even after with  
prophet's held  
and toward  
behold by  
Ethernet  
bridge  
and  
and

big in N.M. for small technology. In  
we can't stand still with today's  
why they will need a  
the production

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**Richard T. Simpson**

(919) 990-9243 or [rsimpson@isa.org](mailto:rsimpson@isa.org)

**Jeff Hartsock**

(919) 990-9308 or [jhartsock@isa.org](mailto:jhartsock@isa.org)



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