

RS232 • Ethernet • Wireless 802.11B Ethernet • USB • 4-20mA • RS485 • Fiber Optic • Barcoding

Step Into the Future with Doran's Ethernet Communication Options!

Virtually every company today has an Ethernet network to distribute email, Internet access, share printers and run enterprise wide software. Your customers both large and small can leverage their existing Ethernet and PC hardware infrastructure and extend it to the factory floor. The merging of the administrative, control level, and device level networks makes for a less expensive and more connected data network. The result is an efficient end-to-end flow of data from the plant floor to the front office network, where it can be used to better manage operations.

Adding scales to an existing Ethernet network will not adversely affect the network speeds for existing devices. The speed of 10/100Base-T Ethernet networks that provide up to 100 Mbps communication bandwidth clearly eclipses the requirements for scale communications. A typical scale data string only requires about 200 bits, a tiny fraction of the available bandwidth for Ethernet.

As an example of the speed of Doran's Ethernet option; The Excelsator Data collection software can monitor up to 20 scales with continuous print into one spreadsheet workbook in real time while only utilizing 0.004% of the total network's Ethernet bandwidth. Compare this to loading Google on Internet Explorer requires quite a bit more network bandwidth!



Utilizing the existing Ethernet network without affecting existing devices is the reason why Doran's Ethernet communications option is so cost effective. It is obvious that RS-232, with all of its networking and configuration drawbacks, is quickly becoming a communications method of the past for data collection.

Is Ethernet Expected to see Continued Strong Growth and Acceptance?

The ARC Advisory Group Study of Industrial Ethernet devices predicts a compound annual growth rate of 50%+ for the next five years! In 2004, 840,000 Ethernet enabled industrial devices were shipped with 6,700,000 devices predicted to ship in 2009!

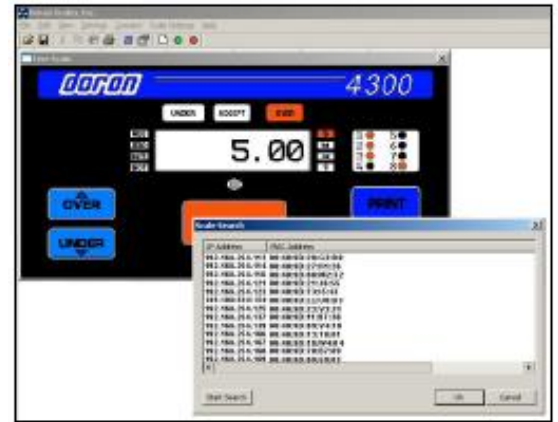
Ethernet enjoys such wide acceptance because it is easy to understand, deploy, manage and maintain. Since Ethernet is vendor independent, it provides economies of scale and vast technological innovations. Implementation of a system is very cost effective considering the infrastructure can be shared with an existing network as well.

The cost effectiveness of Ethernet is expanding the data collection market by introducing customers who previously did not have the expertise or the budget to implement an industrial data collection or PLC system. PLC architectures are far more costly to implement and are being replaced in many applications by Ethernet. Proprietary PLC systems are losing market share to Ethernet not only based on cost but on increased functionality as well. Since Ethernet is so widely accepted, the number of devices and software that can interface with Ethernet devices is several magnitudes larger than PLC based systems.

Why Consider Doran Ethernet for Scale Communications?

When data is collected from a scale or from multiple scales it fundamentally increases the value of the weighing system. It is no longer “just a scale”, it is now an efficiency meter, provides accuracy verification and is a productivity aid. Real time data from the scale is valuable, and Doran’s Ethernet and Data collection systems make it easy to take advantage of this data.

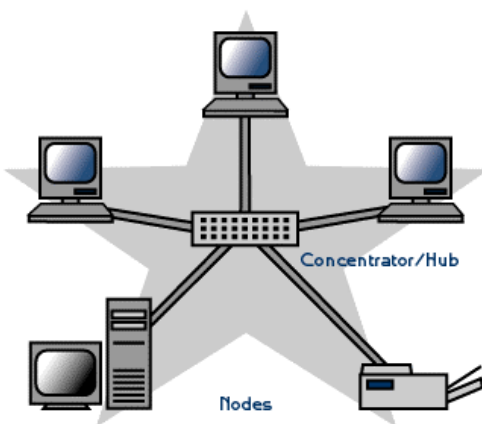
The Doran Ethernet open-standard networking solution securely connects the factory to the corporate office, which enables organizations to make strategic business decisions backed by real-time data from the production floor. Doran has been working with Ethernet applications for over 5 years. During this time we have amassed a significant wealth of experience over these years.



What are Potential Problems?

Developing and facilitating a working relationship with open lines of communication with IT personal and plant or control engineers is not always an easy task. Many companies with politically strong IT departments may be able to derail an Ethernet application because they don't understand the need and benefit or are just too busy to be bothered with it. The key to acceptance and successful implementation of scale Ethernet system is to provide outstanding support to the plant engineers. With the outstanding Ethernet support available from Doran, we are finding in the past two years, many plants are already online with Ethernet and are ready to take on the implementation task from a plant manager level without involving IT.

Due to their security concerns and sometimes complex configuration, Wireless Ethernet is still mainly handled by IT departments. There are many different networking hardware providers and each uses their own security terminology and all operate slightly differently.



As a result of this diversity and complexity, we have found that Wireless routers are difficult for Doran to troubleshoot remotely due to the varying complexity (Cisco routers have a 200+ page manual vs. a Linksys 10 page manual) and the ability to get IT personnel to spend time configuring the access point security settings to complete the scale installation. When the customer has not been able to get the IT department involved, we have suggested alternate routers that we have successfully worked with in the past. While no one is interested in stealing weight data from a scale, breaching the wireless access point security, gives complete access to an unauthorized user to their server and Internet. This risk is too great to just hand over to a non-IT professional in many cases.

The reliability of Ethernet networks is very high, but if this network goes down it may hamper production if control systems are implemented through the company wide network. Networks and servers are constructed with redundancies even at the device level to prevent outages, but outages do need to be taken into account when designing an Ethernet based control system.

Which is Better, Wired or Wireless?

A basic rule to consider: If there is a potential safety issue involved or if the data absolutely critical and every effort must be made to safe guard it, use Wired Ethernet. If that is not the case, consider these advantages and disadvantages for wired and wireless Ethernet:

Wired Ethernet	Advantages	<ul style="list-style-type: none"> • Easy to implement, plug in and you are ready to go! • Many non-IT professionals can implement the installation. • Easy to troubleshoot the network connection and cabling. • Status lights on the Ethernet option and Ethernet Switch indicate the status of the network connection and cable integrity. • Cable connection to the scale is IP65 rated.
	Disadvantages	<ul style="list-style-type: none"> ○ Requires cables to be run, which can represent up to 50% of the device's installation. ○ Harsh environments require hardened cabling with polyurethane jackets that resist oil, caustic cleaners and harsh environments. ○ If equipment leaves the room for the washdown, the connector on the Ethernet cable will need to be protected when not connected to the scale.

Wireless Ethernet	Advantages	<ul style="list-style-type: none"> • No cables to run, lowering initial device installation. • Scales can be easily moved from one location to another in the plant while maintaining communications. • The plant can be reconfigured without concern for Ethernet cables. • Antenna is IP65 rated
	Disadvantages	<ul style="list-style-type: none"> ○ Usually requires the IT department to get involved to ensure security is properly configured. ○ Many companies have chosen not to implement wireless Ethernet. ○ Security settings on the wireless router and the scale must be properly configured initially. This process is made easier with two wireless routers and previous implementation experience. ○ Security settings need to be reconfigured on a regular basis to ensure network security, raising long-term network maintenance costs. ○ Difficult to remotely implement and difficult for non-IT professionals to properly configure and understand the settings for highly sophisticated WAPs. ○ Wireless signals can be interfered with by equipment, walls, or other RF based devices.

What Information do I need to Know from my Customer?

This will vary from application to application. It can be a simple as determining a static or dynamic IP address, to as complicated as multiple encryption keys, security settings and radio frequency configurations. To help you know what to ask your customer, Doran has developed a wired and wireless Ethernet worksheet. You can use this with the customers IT professional to determine the correct configuration. Send the completed form to us so that your Doran Ethernet Scale system is set up correctly prior to shipping. This can really save time and effort during installation.

You can download a copy of this work sheet at www.doranscales.com or by contacting the sales team at Doran Scales.