Industrial Ethernet Infrastructure
Design Seminar

Featured Brands

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October 1-3, 2012
The Westin Chicago North Shore
Chicago, Illinois

2012 Industrial Ethernet Infrastructure Design Seminar

A Unique Opportunity to Gain Insight into Mission Critical Ethernet Networking

Belden presents the 2012 Industrial Ethernet Design Seminar taking place October 1-3, 2012 at the Westin Chicago North Shore, Chicago, Illinois.

About the Design Seminar

The seminar is a combination of lecture with hands-on labs to reinforce lecture topics. Attendees can customize their schedule by selecting from a number of technical sessions and hands-on labs. The sessions are organized to ensure everyone has an opportunity to take full advantage of the seminar, regardless of their level of technical knowledge. The hands-on labs are intended to reinforce the topics covered in many of the classes while providing the opportunity to "learn by doing."

Presenters with a combined experience of over 200 years will speak on technical topics including Network Traffic Filtering, Redundancy, Security and physical installation. Each presenter has the experience and technical background to address current technology trends for designing state-of-the-art industrial Ethernet infrastructure networks for a variety of industries, including Petro-Chemical Plants, Transportation, Security, Wind Farms, Automotive Plants as well as Power Generation and Substation facilities.

Attendees will also have the opportunity to hear from recognized industry experts during the lunch break each day. These speakers will not only share their experiences, but also make recommendations for best practices moving forward as technology evolves

Who Should Attend?

This seminar is designed for anyone that is responsible for designing or maintaining mission critical Ethernet networks, network design engineers, machine builders, system integrators, plant engineers, maintenance technicians, IT professionals, and professional engineering firms. The seminar will allow you the opportunity to learn more on reducing costs and installation time effectively while implementing a highly resilient network.

In short, this seminar is ideal for anyone involved with the design, implementation and maintenance of Mission Critical Ethernet Networks.

Note to authorized Hirschmann and GarrettCom System Integrators or Distributors: attendance at the seminar fulfills your technical training requirement.

### Cost

The seminar price is $900.

This cost includes all meals and events, classes, hands-on labs, all technical presentations in electronic format, as well as several special events. Payment is either by credit card, purchase order or company check.

Registration

To register for classes visit our website at **www.belden.com/designseminar**.

NOTE: Classroom sizes are limited, so seating is being offered on a first-come, first-served basis.

Be Certain with Belden
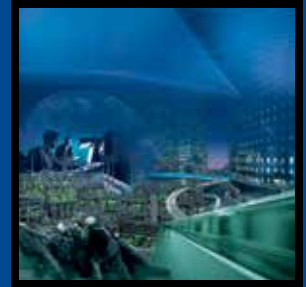
Hotel Information

Westin Chicago North Shore, Chicago, Illinois. To book your hotel visit **www.belden.com/designseminar**.

Event Overview

Attendees should plan to arrive on the afternoon or evening of Sunday, September 30th. The registration desk will be open from 4–8 p.m. for packet pick-up. Join us for a welcome reception from 5-8. Breakfast will be available on Monday, Tuesday and Wednesday mornings beginning at 7 a.m. with the seminar starting promptly at 8 am. There will be general sessions to begin each day, as well as another general session during lunch.

There will be a group dinner and evening event on Monday night. The event will give attendees an opportunity to relax and "network" (in the social sense) with other attendees as well as the staff and management teams from Belden, Hirschmann, GarrettCom and Lumberg. The seminar will conclude at 5 p.m. on Wednesday, October 3rd.

Technical Sessions

- Introduction to Ethernet Networking
- Network Design I: Implementing Redundancy
- Network Design II: Managing Multicast Traffic
- Network Design III: Network Isolation (VLANs / Routing)
- Network Design IV: Introduction to Wireless LAN
- Network Design V: Introduction to Network Security
- Network Management
- Switch Selection: Choosing the Right Product for Your Application
- Cool Things Your Switch Can Do That You Don't Know About
- IEC 61850
- Hirschmann System Integrator Forum

- Hirschmann Distributor Forum
- Industrial Connectivity: Active Product Technology
- Fiber Optic Cabling
- Ethernet Cabling: Your Questions Answered
- Industrial Automation Cabling (Non-Ethernet Applications)
- Security the Hirschmann Way
- PoE
- Industrial Control Incident Response Planning
- Troubleshooting Industrial Ethernet Networks
- Ethernet Networking with PLC Communications and IO
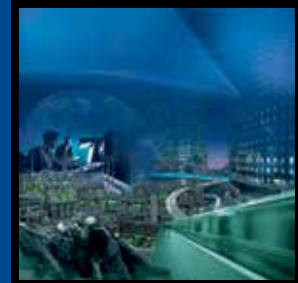
Hands-On Labs

- Managed switches "Out of the box"
- Network Redundancy
- Serial/WAN
- Layer 3 / Routing Basics
- Layer 3 / Routing Advanced
- Wireless
- Network Security
- Network Management with Industrial HiVision
- Cool Things Your Switch Can Do

Contact Information

For questions, please contact Yvette Marks, **Phone: 717-217-2211** or **E-mail: Yvette.Marks@Belden.com**.

Schedule at a Glance

Day 1	Sunday, September 30, 2012				
4:00pm - 8:00pm	Registration/Information Desk Open				
5:00pm - 8:00pm	Welcome Reception - Cocktails and Hors D'oeuvres				

Day 2	Monday, October 1, 2012				
7:00am to 5:00pm	Registration/Information Desk Open				
7:00am to 8:00am	Breakfast				
8:00am to 9:00am	Welcome - Keynote Address				
	Room 1	Room 2	Room 3	Room 4	Room 5
	Session 1				
9:15am to 10:45am	Introduction to Ethernet Networking	Fiber Optic Cabling	**Network Design V** Introduction to Network Security	Hands on Lab Managed Switches "Out of the Box"	Security the Hirschmann Way
	Session 2				
11:00am to 12:30pm	**Network Design I** Implementing Redundancy	Switch Selection Choosing the right product for your application	Hands on Lab Network Security	Hands on Lab Managed Switches "Out of the Box"	Industrial Control Reponse Planning
12:30pm to 2:00pm	Lunch / Guest Speaker				
	Session 3				
2:00pm to 3:30pm	Industrial Connectivity Active Product Technology	**Network Design II** Managing Multicast Traffic	**Network Design III** Network Isolation (VLAN / Routing)	Hands on Lab Network Redundancy	Troubleshooting Industrial Ethernet Networks
	Session 4				
3:45pm - 5:15pm	Cool Things Your Switch Can Do That You Don't Know About	Ethernet Cabling	Hands on Lab Layer 3 / Routing Basics	Hands on Lab Serial/WAN	PoE
6:00pm - 7:00pm	Appetizers & Open Bar				
7:00pm - 8:00pm	Dinner				
8:00pm - 11:00pm	Entertainment				

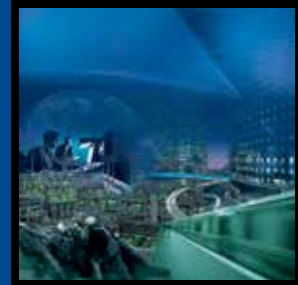| Day 3	Tuesday, October 2, 2012				
7:00am to 5:00pm	Registration/Information Desk Open				
7:00am to 8:00am	Breakfast				
	Room 1	Room 2	Room 3	Room 4	Room 5
	Session 5				
8:00am to 9:30am	Network Management	**Network Design IV** Introduction to Wireless LAN	Hands on Lab Layer 3 / Routing Advanced	Hands on Lab Cool Things Your Switch Can Do	PoE
	Session 6				
10:00am to 11:30am	Ethernet Cabling	**Network Design I** Implementing Redundancy	OPEN	Hands on Lab Network Management with Industrial HiVision	Security the Hirschmann Way
11:30am to 1:15pm	Lunch / Guest Speaker				
	Session 7				
1:30pm to 3:00pm	Industrial Connectivity Active Product Technology	**Network Design IV** Introduction to Wireless LAN	**Network Design V** Introduction to Network Security	Hands on Lab Network Redundancy	Ethernet Networking with PLC Communications and IO
	Session 8				
3:30pm - 5:00pm	**Network Design II** Managing Multicast Traffic	IEC61850	Hands on Lab Network Security	Hands on Lab Wireless	OPEN

Schedule at a Glance (Continued)

Day 4	Wednesday, October 3, 2012			
7:00am to 12:00pm	Registration/Information Desk Open			
7:00am to 8:00am	Breakfast			
	Room 1	**Room 2**	**Room 3**	**Room 4**	**Room 5**
	Session 9			
8:00am to 9:30am	Hirschmann System Integrator (HSI) Forum	Cool Things Your Switch Can Do That You Don't Know About	**Network Design III** Network Isolation (VLAN / Routing)	Hands on Lab Network Management with Industrial HiVision	OPEN
	Session 10			
10:00am to 11:30am	Hirschmann Distributor Forum	Network Management	Hands on Lab Layer 3 / Routing Basics	Hands on Lab Serial/WAN	OPEN
11:30am to 1:15pm	Lunch & Guest Speaker			
	Session 11			
1:30pm to 3:00pm	Switch Selection Choosing the Right Product for Your Application	**Network Design IV** Introduction to Wireless LAN	Hands on Lab Layer 3 / Routing Advanced	Hands on Lab Network Management with Industrial HiVision	OPEN
	Session 12			
3:30pm - 5:00pm	Industrial Automation Cabling (Non-Ethernet Applications)	IEC61850	Hands on Lab Network Security	Hands on Lab Wireless	OPEN

Session Descriptions

| Session ID	Session Title	Session Description	Sessions
TP01	Introduction to Ethernet Networking	Ethernet 101: A foundation class that will introduce you to the history and evolution of ethernet, the OSI model, industry standards and common terms.	1
LB01	Hands on Lab: Managed Switches "Out of the Box"	Literally, out of the box. Attendees will power up a Hirschmann switch and learn how to set parameters and commission the switch for their application.	1, 2
TP02	Network Design I Implementing Redundancy	We'll begin with a discussion of redundancy protocols: open standards vs. proprietary methods, and the pros and cons of each. Then we will examine the various ways that each method can be implemented, so that you can make the best selection for your applications.	2, 6
LB02	Hands on Lab: Network Redundancy	Deploying Redundancy in GarrettCom switch offerings: Implementation and use of redundancy capabilities within our managed and unmanaged ethernet switch offerings to maximize network uptime.	3, 7
TP03	Network Design II Managing Multicast Traffic	EtherNet/IP is a very popular industrial protocol that takes advantage of multicasting. This session will provide you with an understanding of how multicasting works, so that you can manage it properly on your network and maximize the performance of each end device.	3, 8
TP04	Network Design III Network Isolation (VLAN / Routing)	A network's performance can be dramatically improved by isolating traffic. This session will look at the reasons why you would want to isolate network segments, and various ways to deliver this isolation including the use of VLANs, routers / Layer 3 switches and firewalls.	3, 9
LB04A	Hands on Lab: Serial/WAN	Serial and WAN technology Integration: Using GarrettCom DX and 10 Series offerings to integrate serial and WAN based interfaces into an overall network deployment with a mixed environment of interfaces and technologies.	4, 10
LB04B	Hands on Lab: Layer 3 / Routing Basics	Learn the fundamentals of setting up separate logical networks using a layer 3 Hirschmann switch.	4, 10
LB04C	Hands on Lab: Layer 3 / Routing Advanced	This session is for advanced users with a strong understanding of IP addressing and subnetting. This lab will introduce you to dynamic routing as a means to isolate your network traffic with a layer 3 Hirschmann switch.	5, 11

Session Descriptions (continued)

Session ID	Session Title	Session Description	Sessions
TP05	Network Design IV Introduction to Wireless LAN	WLAN technology is rapidly gaining acceptance in mission critical networks. This session will help you understand the 802.11 "alphabet soup". From there we will look at several real world applications to see how those technologies are implemented successfully.	5, 7, 11
LB05	Hands on Lab: Wireless	It's been said that the best way to learn wireless is to do wireless…here's your chance to do just that! Hands on experience with Hirschmann Wireless devices.	8, 12
TP06	Network Design V: Introduction to Network Security	Network security is an important, and very broad topic. This session will introduce you network security, and look at various approaches to implementing security on your network and current trends in the market. Security features inside Hirschmann switches will be discussed, as well as dedicated security products.	1, 7
LB06	Hands on Lab: Network Security	Students will have the opportunity to implement network security with the Hirschmann Eagle family of products, as well as learn about security features inside every Hirschmann managed switch.	2, 8, 12
TP07	Network Management	SNMP, OPC, Web Browser, Hyperterminal…are all methods to interface with your network devices, and each has its place, but what combination of these is right for your application? As your network grows and becomes increasingly important, a solid network management strategy is a must. This session will provide you with an understanding of network management so that you can make informed decisions on your own networks.	5, 10
LB07	Hands on Lab: Network Management with Industrial HiVision	Learn how easy it is to implement a network management system, and also see how powerful a tool this can be.	6, 9, 11
TP08	Switch Selection: Choosing the Right Product for Your Application	Picking out an ethernet switch is simple, right? Just flip open the Hirschmann catalog and pick one! With literally thousands of part numbers, this is not such an easy task. This session will begin with the basics, what is required for your application: Managed or Unmanaged, din rail, 19" rack or surface mount, environmental specs, and so on. From there we'll look at each Hirschmann product family and help you to understand the part numbering system. We'll also show you several part number configuration tools to simplify the entire process.	2, 11
TP09	Cool Things Your Switch Can Do That You Don't Know About	There are many features inside a Hirschmann switch, but most people don't know they are there. However, many of these features offer valuable, time saving benefits. We'll introduce you a number of these features, and show you how to take advantage of them.	4, 9

Session Descriptions (Continued)

Session ID	Session Title	Session Description	Sessions
LB09	Hands on Lab: Cool Things Your Switch Can Do	You've been to the presentation, now learn these Hirschmann switch features firsthand.	5
TP10	IEC61850	IEC 61850 is the new emerging international standard for energy automation that will have a very significant impact on how electric power systems are designed and built for many years to come. You will leave this session with a solid understanding of this somewhat challenging standard.	8, 12
TP11	Hirschmann System Integrator (HSI) Forum	For integrators interested in learning more about the Hirschmann System Integrator program, this session will provide details, requirements and benefits.	9
TP12	Hirschmann Distributor Forum	This session is limited to authorized Hirschmann distributors only. This is designed to be an information exchange to provide an update on Hirschmann's distributor program, answer questions and gather feedback for future enhancements.	10
TP14	Industrial Connectivity: Active Product Technology	A discussion of various fieldbus networks (As-I, Interbus, Can, Devicenet and Profibus) and ways that these networks can be implemented in a more cost effective manner using products from Lumberg Automation. We will also examine added benefits that come with this technology - primarily access to more information and diagnostics.	3, 7
TP15	Fiber Optic Cabling	A presentation covering all aspects of fiber optic media: single-mode versus multimode fiber, loose tube and tight buffer cables as well as types of fiber cables for different applications. Fiber connectivity reviewed including LC, SC and ST connectors and more.	1
TP16	Ethernet Cabling	Over 35% of network downtime is a direct result of cabling problems. This session will help you understand cable standards, applications and options. Cat 5e or 6? Shielded or Unshielded? Conduit or not? Belden will present the answers to these and many more tough application challenges.	4, 6
TP17	Industrial Automation Cabling (Non-Ethernet Applications)	The various industrial automation protocols each have unique cable requirements. This session details the varied cabling requirements for DeviceNet(R), ControlNet(R), Profibus(R), Foundation Fieldbus(TM), etc. The physical and electrical attributes of these automation cables will be discussed.	12
TP18	Security the Hirschmann Way	The various industrial automation protocols each have unique cable requirements. This session details the varied cabling requirements for DeviceNet(R), ControlNet(R), Profibus(R), Foundation Fieldbus(TM), etc. The physical and electrical attributes of these automation cables will be discussed.	1, 6
TP19	PoE	What is PoE and how can it be used in network deployments?	4, 5
TP20	Industrial Control Incident Response Planning. Sponsored by Prime Controls.	Explore the aspects of proactively implementing an overall network security policy and risk mitigation strategy. Learn the value of forming a security incident response team with explicit team member roles explained, as well as how to define a security incident response plan..	2
TP21	Troubleshooting Industrial Ethernet Networks	Learn how to use tools inside your managed Ethernet switch and freely available on the internet to troubleshoot problematic industrial Ethernet networks. Review various common examples of network problems and learn which tools to use and how to apply them.	3
TP22	Ethernet Networking with PLC Communications and IO. Sponsored by Superior Controls.	Examine the limitations (typically PLC vendor dependent) of IO and Ethernet messaging; how to design and plan so that limitations are appropriately dealt with, and how to diagnose and resolve when these limits are reached.	7
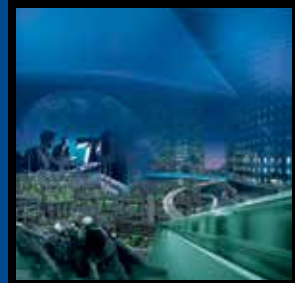
Registration Form

1. Please complete this registration form and fax it to **717-217-2277**. For questions: Contact Yvette Marks, Phone: **717-217-2211** or E-mail: **Yvette.Marks@belden.com**. You may also register on-line at: **www.belden.com/designseminar**.

2. Please provide us with your contact information:

Company Name: _____

First Name: _____   **Last Name:** _____   **Title:**

Phone: _____   **E-mail Address:** _____

Street Address: _____

City: _____   **State:** _____   **ZIP:** _____

3. Please indicate [**X**] your class preference below. Only choose one class per session.

Session	Room 1	Room 2	Room 3	Room 4	Room 5
1	☐ Introduction to Ethernet Networking	☐ Fiber Optic Cabling	☐ **Network Design V** Introduction to Network Security	☐ Hands on Lab Managed Switches "Out of the Box"	☐ Security the Hirschmann Way
2	☐ **Network Design I** Implementing Redundancy	☐ Switch Selection Choosing the right product for your application	☐ Hands on Lab Network Security	☐ Hands on Lab Managed Switches "Out of the Box"	☐ Industrial Control Reponse Planning
3	☐ Industrial Connectivity Active Product Technology	☐ **Network Design II** Managing Multicast Traffic	☐ **Network Design III** Network Isolation (VLAN / Routing)	☐ Hands on Lab Network Redundancy	☐ Troubleshooting Industrial Ethernet Networks
4	☐ Cool Things Your Switch Can Do That You Don't Know About	☐ Ethernet Cabling	☐ Hands on Lab Layer 3 / Routing Basics	☐ Hands on Lab Serial/WAN	☐ PoE
5	☐ Network Management	☐ **Network Design IV** Introduction to Wireless LAN	☐ Hands on Lab Layer 3 / Routing Advanced	☐ Hands on Lab Cool Things Your Switch Can Do	☐ PoE
6	☐ Ethernet Cabling	☐ **Network Design I** Implementing Redundancy	☐ OPEN	☐ Hands on Lab Network Management with Industrial HiVision	☐ Security the Hirschmann Way
7	☐ Industrial Connectivity Active Product Technology	☐ **Network Design IV** Introduction to Wireless LAN	☐ **Network Design V** Introduction to Network Security	☐ Hands on Lab Network Redundancy	☐ Ethernet Networking with PLC Communications and IO
8	☐ **Network Design II** Managing Multicast Traffic	☐ IEC61850	☐ Hands on Lab Network Security	☐ Hands on Lab Wireless	☐ OPEN
9	☐ Hirschmann System Integrator (HSI) Forum	☐ Cool Things Your Switch Can Do That You Don't Know About	☐ **Network Design III** Network Isolation (VLAN / Routing)	☐ Hands on Lab Network Management with Industrial HiVision	☐ OPEN
10	☐ Hirschmann Distributor Forum	☐ Network Management	☐ Hands on Lab Layer 3 / Routing Basics	☐ Hands on Lab Serial/WAN	☐ OPEN
11	☐ Switch Selection Choosing the Right Product for Your Application	☐ **Network Design IV** Introduction to Wireless LAN	☐ Hands on Lab Layer 3 / Routing Advanced	☐ Hands on Lab Network Management with Industrial HiVision	☐ OPEN
12	☐ Industrial Automation Cabling (Non-Ethernet Applications)	☐ IEC61850	☐ Hands on Lab Network Security	☐ Hands on Lab Wireless	☐ OPEN

4. Method of Payment. Please indicate [**X**] your method of payment.

☐ **Purchase Order** Please attach Purchase Order to your registration form   ☐ **Check**

☐ **Credit Card** We will contact you for your credit card billing information.

5. Please indicate your desired shirt (golf) size.   **Male:** ☐   **Female:** ☐

SM ☐   **M** ☐   **LG** ☐   **XL** ☐   **XXL** ☐   **Other** _____ (specify)

NOTE: Classroom sizes are limited, so seating is being offered on a first-come, first served basis.