

We know that it takes more than a good product to keep our customers happy. So, we strive to bring you the services and support you need to keep your instrumentation in working order, and keep your process running at top efficiency. Read more here, and learn even more online at [Lesman.com](http://www.lesman.com).

Looking for products from RAECO, our partner for industrial hygiene, safety, and environmental instrumentation? See pages 511 to 586 for their most popular portable and fixed instruments, as well as units available to rent for short-term use.



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**Looking for application datasheets? Want to learn more?**  
 Visit us online at [www.lesman.com](http://www.lesman.com)

## Terms and Conditions

### Disclaimer of Warranty and Limitation of Liability

All assistance or data are rendered by Lesman gratis. Information of this nature is based upon technical data which Lesman believes reliable. It is intended for use only by persons having skill and know-how, at their own risk. As a distributor for the products described, Lesman warrants that to the extent that manufacturers have made representations concerning products in this catalog to Lesman, the statements in this catalog reflect accurately those representations.

Goods are warranted only to the extent of the express warranty of the manufacturer represented thereof and to the extent such is enforced by the seller. No warranty either expressed or implied is made by seller as to the fitness, merchantability, condition, capacity, or efficiency of any good sold, and no claims for labor or consequential damages will be allowed.

At Lesman's option, the sole and exclusive remedy of purchasers hereunder shall be replacement of nonconforming products or payment in an amount not to exceed the purchase price of the product(s) for which damages are claimed.

### Prices

Prices listed in this catalog are in effect at the time of publication and are subject to change without notice. The prices of goods sold are those in effect at the time of the sale. Please contact our sales department for current prices. We will be pleased to furnish quotations on request by mail, phone, fax, or e-mail.

### Remittance Terms

Our terms are Net 30 days. Accounts that are over 45 days old are past due and put on hold. If there is some reason why you can't remain current, please call our accounts receivable manager to discuss the reason for the delay.

### Credit Card Security

We accept Visa, MasterCard, and American Express. We do not charge for any item until it is ready to ship. You may send your credit card information via phone, fax, U.S. Postal Service mail, or our encrypted Internet ordering center.

### Design Changes

Design changes are made from time to time. Some items may differ slightly from catalog illustrations or descriptions.

### Tax Charges

Taxes will be applied at order processing for orders shipped into Illinois, Indiana, Iowa, Michigan, Missouri, and Wisconsin customers only. (Wisconsin and Missouri customers, please include your county, as taxes vary by location.) If your company is tax exempt, please note on your order. Tax-exempt companies must provide current state tax exemption certificates with their first Lesman orders.

### Delivery

All items are F.O.B. (E.X.W.) shipping point (Bensenville, IL or Butler, WI). Unless otherwise specified, all domestic orders are shipped via UPS Ground service. Customers who have their own UPS accounts may request shipping via their account number to avoid freight charges being added to the Lesman invoice. These shipments will be subject to a nominal handling charge. International customers can ship direct using DHL, or via the U.S. freight forwarder of their choice. Unless otherwise specified, all international orders will ship complete. Freight charges will be prepaid and added to the invoice.

### Returns

To help us adjust your account quickly, please obtain return authorization from our purchasing department. Give us the reason for return, purchase date, and your purchase order number.

### Privacy Policy

Your information will remain confidential, and be used only to support you in your business with Lesman Instrument Company or its subsidiaries. We do not, under any circumstances, sell or trade our customers' personal information. The Lesman mailing list is managed on an opt-out basis. If, at any time, you wish to stop receiving literature from us, just let us know by sending us an e-mail.

Thermometers

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# Lesman University Training Courses



At Lesman, our goal is to make sure you get the right product, understand how it works, make sure it's installed properly, and get the most out of it. To help you with that, we've created a set of classes to teach you what you need to know about the instrumentation you buy from us.

Courses are done in a lecture style with question/answer periods. Where necessary, they include some hands on examples. Classes can be held at your plant or in a Lesman Training Center.

Each unit can be ordered in whole, or can be customized to focus only on the subjects most important to you or for specific instrumentation.

Lessons within each course unit run an average of an hour each. As some units have more than seven lessons, you may need to schedule multiple training days to complete the course.

We recommend scheduling no more than four course lessons in a single sitting, so students have time to absorb the information without being overwhelmed by too much new technology.

## Basic Concepts of Process Control

*This course teaches the very basics of what someone will find in a continuous or batch environment. It is intended for those that are brand new to a plant, and have not had experience around a process.*

### Lesson 1 - Process Basics (8 Hours)

- Defining basic terms
- Automatic vs. manual control
- Basics of control loops
- Basics of measurement: Pressure, Temperature, Level, Flow, Mass, Weighing (solids vs. liquids)
- Drawings and Symbols
- What is PID and what does "tuning" do?  
*(Intended to provide an understanding of PID, not the ability to troubleshoot or tune a control loop's parameters. A "hands-on" portion shows the impact of different tuning parameters.)*
- Final control elements (valves/motors/burners)

## Level Instrumentation

*Designed to give an overview of technologies and their applications. After this session you will understand the plus and minuses of each technology and where they should be applied and why. With over 10,000 installed level points, we've have the experience to make sure your applications are successful.*

### Lesson 1 - Overview of Level Instrumentation (2 Hours)

- **Contact Technologies**
  - Point Level
    - Rotating paddles (Bindicators)
    - Floats
    - Optical
    - Tuning fork (ultrasonic)
    - Capacitance
  - Continuous Level Technologies
    - Bypass sight glass technology
    - Capacitance
    - TDR (Radar on a rope)
    - Submersible head pressure
    - Differential pressure and bubblers
- **Non-Contact Technologies**
  - Point Level: Ultrasonic
  - Continuous Level:
    - Ultrasonic, Radar, Laser, Nuclear, Level by weight



## Combustion Systems

### Lesson 1: When is Flame Safety Required?

- Types of applications
- Basics of flame detection
- Basics of systems and terminology
- Main functions of flame safety controls
- A fully implemented burner system



### Lesson 2: Burner Controls

- Four categories: Flame switches, primary controls, programmers, microprocessor control systems
- Functions of flame safety systems: System checks, burner system sequencing, supervisory functions and shutdown

### Lesson 3: Advanced Flame Safety Control Programmers

- System components
- System functions and applications

### Lesson 4: Advanced Flame Safety Concepts

- Valve proving systems
- Linkageless control systems (Honeywell ControlLinks™)
- Energy savings with pulse firing

### Lesson 5: Gas Trains and Valves

## Honeywell UDC Controllers

*Targeted at Engineers and Technicians that have interface with Honeywell UDC 1/4 DIN Controllers. This session has a significant amount of hands on interface with the controllers to build familiarity throughout the training session.*



### Lesson 1 - Honeywell UDC Controllers

- Comparison of current models to older models
- Overview of Control Loops
- Familiarity – How to read the display and use the keypad
- Wiring
- Configuration — Local and via handheld programming tools
- Auto-tuning
- Communications

## Industrial Communication Basics

### Lesson 1 - Basics of Industrial Communications (4 Hours)

- Difference between physical layer and protocol: RS-232, RS-485, Ethernet, Fiber Optic, Modbus®, HART®, OPC (OLE for Process Control)

## Standard Pricing for Courses

|                                       |         |
|---------------------------------------|---------|
| Course Materials (per Person) .....   | \$50.00 |
| Two-Hour Minimum Charge .....         | 350.00  |
| Half-Day Training (Four Hours) .....  | 550.00  |
| Full-Day Training (Eight Hours) ..... | 950.00  |

Travel expenses outside Chicago vicinity will apply.

**Call 800-953-7626 to schedule your Lesman U wireless training!**

## Free Webinars and Online Training at Lesman.com

One of the core values we live by at Lesman is this: Always be learning, Always be improving. So, our goal is to do more than just supply you products. To make that happen for you, we work with our manufacturer partners and factory-trained product specialists to provide training sessions and reference materials.

This training is designed to help you choose the right instrumentation for your process and get the most out of the products you buy from us. Nearly every month, we offer free webinars with specialists in particular technologies or industries.

You can register for these monthly webinars at [www.Lesman.com/training.html](http://www.Lesman.com/training.html). Watch your e-mail for announcements and invitations. If you missed a session, you can watch it online whenever it's convenient to you.

There are currently almost three years worth of webinar recordings available for you to watch for free anytime, including:

- Level Technology for Dry Solids and Powders
- Load Cells for Accurate, Trouble-Free Tank Weighing
- Regulators 101: Basics of Pressure and Temperature Regulators
- Steam Traps 101: Basic Technology and Applications
- Butterfly Valves 101: Basic Technology and Applications
- Intro to Control Valves for Low Flow Applications
- pH 101: Basics of pH Measurement
- pH 201: Not All Sensors are Created Equal
- pH 301: Troubleshooting pH Systems
- Flame Safeguard 101: Flame Safeguard Basics
- Flame Safety 201: Understanding Primary and Program Controls
- Flame Safety 301: Integrated Scanners
- Industrial Flame Detection for Difficult Applications
- Pulse-Fired Burner Control Technology

**Attend live or watch the recording – Whichever fits your schedule best!**



- Non-Contacting Ultrasonic Flow Measurement Technology
  - Prevent Cyber-Security Hacking with Instrumentation
  - Remote Seal Theory and Applications
  - Communication Basics 1: The Mules, Tools, and Rules of Industrial Communications
  - Which Industrial Wireless Technology is Right for Me?
  - Industrial Wireless I/O Systems for Harsh Environments
  - Honeywell and the ISA 100 Wireless Standard
- See our full list of webinar recordings at [www.Lesman.com/train/](http://www.Lesman.com/train/)

**Get invited to all of our webinars! Sign up at [www.lesman.com/train/](http://www.lesman.com/train/)**

## Paperless (Video) Recorders

### Lesson 1 - Getting Started (2 Hours)

- Planning a successful implementation
- Documenting before you "Do"
- Basic wiring and networking
- Screen memory vs. storage memory
- Understanding and selecting "credits"
- Batch recording



### Lesson 2 - Getting the Most Value Out of Your Recorder (2 Hours)

- Multiple screens and the power of different formats
- Data on the desktop ... browse the recorder from your desk
- How to use the TrendServer Pro database
- Charts: Marking the chart, adding notes, and printing
- Thermocouple health
- How using built-in tools can maximize your data's value

### Lesson 3 - Configuring Recorders [Some Hands-On] (4 Hours)

|                       |                       |              |
|-----------------------|-----------------------|--------------|
| Analog inputs         | Batch recording       | Credits      |
| Screens               | Network configuration | Pens         |
| Basic security        | Printer configuration | Basic events |
| Browsing the recorder | Localization          |              |

### Lesson 4 - Advanced GR Series Topics – Customer-Specific

- Database management and the tools available
- Extended security (for 21CFR Part 11 compliance)
- Routine plant maintenance
- Finding/Searching for historical data
- How to view data with multiple recorders on a network
- Configuring network printers

## Wireless Instrumentation

*Designed to give anyone who is interested in implementing wireless applications in an industrial environment the knowledge to have a successful installation.*



### Lesson 1: Intro to Industrial Wireless

- RF fundamentals
- Signal propagation (line-of-sight, attenuation)
- Evaluating differences between spread spectrum technologies
- Antenna selection and placement
- Practices to avoid signal loss
- Performance zones
- Wireless system selection criteria
- Security issues



### Lesson 2: Wireless Installation and Maintenance

- Selection of proper radio unit
- Radio, cable and antenna maintenance
- Antennae locations for installers

### Lesson 3: Honeywell XYR Software Functionality

- XYR6000 security setup
- I/O configuration
- Node commissioning



## Don't Miss the News!

Every month, our team compiles the latest news from our manufacturers, and sends it to customers in a compact e-news format.

Learn about the latest available products, enhancements to existing products, product retirement announcements, services that help make your job easier, articles on industry topics, and details about our upcoming live training and webinars.

Join nearly 5,000 Lesman customers who stay-in-the-know with our monthly e-news. Go to [www.Lesman.com/e-news/](http://www.Lesman.com/e-news/) for access to back issues of the e-news, and join our subscriber list.

**Subscribe online and visit our e-news archive to read back issues: [www.Lesman.com/e-news/](http://www.Lesman.com/e-news/)**

## Technical Tips Blog

If you've ever called in to Lesman for technical support, you've probably talked to Dan Weise, our product specialist. He's been with Lesman for 25 years, and in the industry for another 10.

He's the guy we all turn to for explanations, for technical support, and for getting to the real "So What" of the new products available to us and our customers. He's also great for finding that one critical tip the manufacturer left out of the manual.

Dan's been collecting and sharing his tips and tricks with customers for years. And in 2011, we started posting them online. Now, his articles have been read nearly 50,000 times.

On the blog, Dan and our other technical experts cover everything from explaining standards and basic technical tips to the tricks that will save you hours in the field making that one instrument work as expected.



**Dan Weise,**  
Product Specialist

### Some of our most popular posts include:

- What does NAMUR NE43 do for me?
- How does adding a 250-ohm resistor make HART work?
- Wiring industrial thermocouples: Basic tips and suggestions
- Are bubbler systems still viable for measuring liquid level?
- What are DIN size panel cutouts?
- Which temperature sensor do I need? An RTD or a thermocouple?
- Why is pressure switch deadband such a crapshoot?
- Flowmeter analog totalizer vs pulse input totalizer: A side-by-side comparison
- How do I get an RTD signal to two different devices
- What's the best location to install an ultrasonic level transducer?
- Radar vs ultrasonic level calibration points (*The devil's in the details*)
- HART communications without busting the budget
- How do you keep production going with a control thermocouple burns out?

### Tech tips, field problems solved, and "So What?" reviews

Whenever our technical guys run into a situation in the field, they write a quick post for the blog, so you can learn from their experiences, like where to properly install an ultrasonic transducer for best level measurement results, or what to do if you misplace your Siemens infrared handheld programmer.

And, as new products are released, you'll find a "So What?" review that goes far beyond the "New and Improved" marketing language and hits the heart of what will really matter most to you: How they've improved configuration, made installation and maintenance easier, added features that help solve common problems, and more.

### Get all the tips, delivered straight to your desktop!

Visit [blog.Lesman.com](http://blog.Lesman.com) and click the [Sign Me Up!] button. You'll get the latest technical tip in your e-mail inbox as soon as it's posted.

**Learn more and subscribe for updates at [blog.Lesman.com!](http://blog.Lesman.com/)**

## Doing Business with Lesman

We're committed to working with our customers to discover ways of improving their business results, continuing to provide higher-quality products in less time while saving money and providing safe working environments for their employees. Over the past few years, we've expanded our customer services to include inventory reduction, vendor reduction, cost analyses, ISO-9000 compliance, and simpler ordering, billing, and shipping methods.

We strive to help our customers by providing the service and business technology packages they are most comfortable using to do business with us. Throughout this website you'll find examples of how we've expanded our services to make business easier for our customers.

**Our philosophy is simple.** Our customers aren't satisfied until they are getting everything they expected, and a little more from the products they buy from Lesman.

### New Customer Accounts

**We want to put you on open account ASAP, so we make it easy!** We'll be glad to extend \$500.00 credit on your first order, no questions asked. If you would like more credit, all we require is three (3) trade references of current suppliers and their fax numbers.

### Credit Cards and Corporate Procurement Cards

If you're a new customer and want your product shipped immediately, use your VISA, MasterCard, or American Express card. It's that easy! Just give our inside sales people your card number, cardholder's name, and the card's expiration date and security code, and you're all set.



### Placing an Order

Our customer service people are trained to assist you in the selection of our products. You are not limited to trying to fit the products shown in the catalog to your needs. Our people will help you get the product you need to solve your problem.

If you are ordering items shown in the catalog, we can process your order faster if you provide us with the following information:

- |   |                          |
|---|--------------------------|
| 1. Catalog number                                 | 5. Purchase order number |
| 2. Brief item description                         | 6. Billing address       |
| 3. Quantity                                       | 7. Shipping address      |
| 4. Name and telephone number of the requisitioner |                          |

Place your order before 3:00 p.m. (Central Time) and all in-stock material will ship the same day. After 3:00 p.m., it will go out the next day. Use any form of communication that's easiest for you!

Customers in Illinois, Indiana, Iowa and Missouri  
Lesman Instrument Company  
135 Bernice Drive  
Bensenville, IL 60106  
Local Phone (630) 595-8400  
Toll Free (800) 953-7626  
By Fax (630) 595-2386  
sales@lesman.com

Customers in Wisconsin and Upper Peninsula Michigan  
Lesman Instrument Company  
5160 North 125th Street  
Butler, WI 53007  
Local Phone (262) 923-1790  
Toll Free (800) 837-1700  
By Fax (262) 923-1797  
wisales@lesman.com

We're also available to all Electronic Data Interchange (EDI) customers through the Di-Central Corporation. If you would like to transmit your orders by EDI, contact Mike Heatherly, Lesman controller, at 800-953-7626 or by e-mail (edi@lesman.com).

**Learn more about Lesman's services to support our customers by visiting us online at [www.Lesman.com](http://www.Lesman.com).**



### Your Orders Are Covered by our Service Guarantee!

**Guarantee #1:** If the material you receive doesn't match the Lesman packing slip, we'll give you a coupon for \$25 off your next invoice.

**Guarantee #2:** If you place your order using our catalog numbers, we guarantee complete error-free order processing. If you don't receive exactly what you ordered, we'll give you a coupon for \$25.00 off your next invoice.

**Guarantee #3:** *Your satisfaction is 100% guaranteed!* If you're not completely satisfied with the material you receive, we'll issue immediate return authorization. All we ask is that you return the material in its original packaging in resalable condition.

### Additional Discounts

**Quantity Discounts:** We'll be happy to extend additional discounts for quantities over and above the price schedules published in the catalog and for those products that do not have discounts listed. If you help us buy better, we'll be glad to pass the savings on to you.

**Estimated Annual Usage Discounts:** If you can help us make our business more predictable by giving us estimated annual usage figures or blanket orders with scheduled releases, you may qualify for an additional discount.

### Managing Sales Tax Exempt Orders

In order to comply with state tax codes, Lesman is required to keep complete tax information on file for any customers in Illinois, Indiana, Iowa, Michigan, Missouri, and Wisconsin who request Tax Exempt status.

Current tax exemption forms are available for download from the Lesman website: [www.Lesman.com/AR/exemption\\_forms.htm](http://www.Lesman.com/AR/exemption_forms.htm), and must accompany any individual tax exempt order, or your first order, if all orders with Lesman will be exempt from state sales tax.

If you have further questions, please contact the Lesman accounting department at 800-953-7626.

### Electronic Invoicing — Lesman Goes Green!

In an effort to reduce paper waste, and provide you with a more traceable record of your order invoices, Lesman has moved to a paperless invoicing system.

Visit [www.Lesman.com/AR/](http://www.Lesman.com/AR/), and fill out the form there. You can specify whether you'd like invoices faxed or e-mailed to you. Our accounting department will verify the information you provide, and start sending invoices to you via e-mail or fax right away.

