

READING ELECTRICAL DRAWINGS

for US and FOREIGN made equipment

ATTEND THIS SEMINAR AND LEARN:

- **NEMA - American Symbols**
- **IEC - International Symbols**
- **How Ladder Drawings Show the Operation of Equipment**
- **How to Read and Trace Through Your Drawings**
- **How Electrical Symbols Are Used In Single-Line (Ladder) Drawings**
- **How Electrical Circuits Perform Logic Functions**
- **How to Cross Reference Components in Your Drawings**
- **How to Effectively Use Your Drawings**

THIS CLASS CAN BE TAUGHT AT YOUR FACILITY!!!

To Register: 800-858-6879

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Training Services, Inc.

Training that "WORKS" SM

Call today to
register:
1-800-858-6879

ABOUT THIS CLASS

If you want to troubleshoot, you must be able to read the electrical drawings. This class cuts through all the noise and theory and presents in an easy to follow one-day class how to read the drawings for machines, processes and facilities.

Whether your equipment uses American (NEMA) or International (IEC) symbols and layouts, your drawings are the key to understanding your equipment. Each line is a sentence, written in symbolic form, showing you how a specific part of your system works. Let us unlock this mystery for you. You'll be surprised how much you can learn in one day.

WHO SHOULD ATTEND

This is an introductory class that assumes no prior knowledge of electrical drawings. It is basic enough that someone with no electrical background can understand the subject matter. It is great for technicians and maintenance personnel, engineers, supervisors, draftsmen, CAD operators, or anyone wishing to know more about this subject.

CLASS TIMES

Classes begin promptly at 8:00 a.m. and run until 4:00 p.m. We provide coffee breaks. You are on your own for lunch.

WHO WE ARE

We are dedicated to providing practical working solutions to the problem areas of industry. We represent no manufacturers. What we offer is quality training that works.

Cancellation Policy: A full refund will be given for cancellations received 7 business days prior to seminar date. Cancellations made less than 7 business days will be issued a nonrefundable credit memo to be used toward a future class. Credits are transferrable.

SOME OF OUR REPEAT CUSTOMERS

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 Instruments • Tyson Foods • United Technologies • Walt Disney
 Westinghouse • Whirlpool

"This was a well taught and informative class."

*-Roy Barlow
 TEXACO*

WHAT YOU WILL LEARN:

- NEMA - American Symbols
- IEC - International Symbols
- How ladder drawings show the operation of equipment
- How to read and trace through your drawings
- How electrical symbols are used in single-line (ladder) drawings
- How electrical circuits perform logic functions
- How to cross reference components in your drawings
- How to effectively use your drawings

UNCONDITIONAL MONEY BACK GUARANTEE

No fine print. If you didn't get what you came to this class for, we will refund your money!

TRAINING AT YOUR FACILITY

All of our classes can be taught at your facility. Call us at the following number if you are interested in this or any of our fine training seminars: **1-800-858-6879**

"I would suggest this class to anyone . . ."

*-Glen Collins
 JOHNSON CONTROLS*

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ELECTRICAL DRAWINGS

“Very

informative

and worthwhile.”

– Eric Roysdon
MICRO METALS INC.

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STANDARDS

NEMA - National Electrical Manufacturers Association

ANSI - American National Standards Institute

IEEE - Institute of Electrical and Electronics Engineers

IEC - International Electrotechnical Commission

SYMBOLS

NEMA and IEC

Switches

Loads

Contacts

THREE PHASE DRAWINGS FOR

CABINETS

Motor Starters - Main Contacts

Contactors

Overload Relay - Heaters

Circuit Breakers

Magnetic

Thermal

Fuses

Disconnects

Transformers

CIRCUIT READING/TRACING NEMA

AND IEC EXAMPLES

Multiple Loads

Momentary

Holding

Interlocks

Electrical

Pushbutton

Permissive

Logic Circuits

AND, OR, NOT, NAND,

NOR, Combinations

Master Control

Solenoid Control (hydraulic, pneumatic)

Motor Starting

Jog

Run

Multiple Start/Stop

Event Based Sequence

Push Button Sequence

Hand/Off/Auto

Forward/Reverse

Time Delay

On-Delay

Off-Delay

CONTROL CIRCUIT

DRAWINGS

Ladder, Single-Line Drawings

Component Location Drawings

Cross Referencing

Wire Numbers

Terminal Strip Connections

Components - Loads and Switches

Current Flow

Lines - Rungs - Rails

Manual Control

Automatic Control

Magnetic (Isolating) Control

COMPONENTS

Switches

Pushbuttons

Selector

Foot

Limit

Proximity

Photo

Flow

Liquid Level

Temperature

Relay Contacts

Auxillary Contacts

Overload Contacts

And More!!!

LOADS

Solenoids

Relay Coils

Standard

Latching

On-Delay

Off-Delay

Solid State

Motor Starters

Full Voltage

Solid State

Contactors

IEC Symbols Chart

NEMA Symbols Chart

“Excellent value
& great learning
experience.”

–Barry Smith

SOUTHERN COMPANY SERVICES

www.impactu.com

KNOWLEDGE IS POWER!!!

READING ELECTRICAL DRAWINGS



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for US and FOREIGN made equipment

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SERVICES, INC.

**You should have taken this class 20 years ago.
Unfortunately, it wasn't being taught!**

- 1. Mail** this page to us at address listed above
- 2. Call** us at (800) 858-6879
- 3. Fax** this page to us at (502) 252-8060
- 4. Contact** us at www.impactu.com

Fees of \$489 per person must be received prior to seminar date.

Seminar City: _____ Date: _____

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