# **KENDALL CONNECTED TRAINING**



## LOGIX TRAINING

#### **WINTER 2021**

**December 6** Basic Logix

**December 7** Basic Logix Troubleshooting

December 8 Intermediate Logix

December 9 Intermediate Logix Troubleshooting

December 10 Advanced Logix

#### DETAILS

Kendall Electric 3240 Schuette Road Midland, MI 48642

9:00am - 4:30pm LUNCH PROVIDED

#### Instructor-Led, Hands-On Training

- Flexible Training Offering only choose the days you want
- Scalable Training Offering classes cover various skill levels
- · Individual Training students will be provided with individual lab stations

#### About the Training:

The training classes cover the topics listed in the training matrix shown on page 2. For the best learning experience, we recommend taking training classes in a sequence as they build on one another. Having prior knowledge or skills may allow you to take advanced classes without taking the lower-level classes.

The troubleshooting classes use the lab work from the corresponding training class to teach the relevant troubleshooting skills. For the best learning experience, we recommend taking the corresponding training class before the troubleshooting class.

#### About the Instructor:

Roy Radziszewski is an automation and networks instructor. He teaches courses covering various types of Allen Bradley™ AC variable frequency drives, small and medium range PLCs, PanelView graphic terminals, and Networks (including Stratix switches).

During Roy's career he has started-up, serviced and designed control systems, and has deployed thousands of drives for all types of industrial manufacturing applications.

Roy holds an electrical engineering degree from The Milwaukee School of Engineering and an MBA from the University of Houston. In addition, he holds programming certificates (C, C#, Android, and real-time embedded systems) from the University of Washington and University of California, Irvine. Roy is currently working on his CCNA Certification through Cisco.

*Limited Seating* – maximum 8 stations/students

### **REGISTRATION INFORMATION:**

Cost: \$1,095 per student / per day Register at: keinc.info/KCT



Visit kendallelectric.com/training to view all training offered by Kendall Electric.



Logix Training MatrixBasic retring Started (1-Day)Intermediate (1-Day)Advanced (1-Day)PID (1-Day)Trouble- Shooting (1-Day)Overview of the Logix familyVVVVVOverview of Studio 5000 Logix Designer softwareVVVVVOverview of Rockwell product compatibility websiteVVVVVHow to upgrade (flash) logix controller firmwareVVVVVVNavigating Studio 5000 software featuresVVVVVVBasic logic programmingVVVVVVVAdding local and controller tagsVVVVVVAdding instructions to rungsVVVVVVEditing rungs in program and run modesVVVVVOncine/off-line editingVVVVVUploading/downloading and running a ladder logic programVVVVForcing inputs and outputsVVVVVEthernet retore I/O adapter setup and operationVVVVVDigital point I/O setup and operationVVVVVAddid on instruction) identification and evaluationVVVVVery high speed counter setup and operationVVVVIdentification and evaluationVVVVV
Overview of the Logix family       ✓       ✓         Overview of Studio 5000 Logix Designer software       ✓       ✓         Overview of Rockwell product compatibility website       ✓       ✓         How to upgrade (flash) logix controller firmware       ✓       ✓         Launching software and establishing connectivity       ✓       ✓         Navigating Studio 5000 software features       ✓       ✓         Basic logic programming       ✓       ✓       ✓         Adding local and controller tags       ✓       ✓       ✓         Adding instructions to rungs       ✓       ✓       ✓         Editing rungs in program and run modes       ✓       ✓       ✓         Online/off-line editing       ✓       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓       ✓         Ethernet tataic and dynamic IP address setup       ✓       ✓       ✓         Ethernet tremote I/O adapter setup and operation       ✓       ✓       ✓         Digital point I/O setup and operation       ✓       ✓       ✓       ✓         Adding point I/O setup and operation       ✓       ✓       ✓       ✓       ✓         Digital point I/O setup and operation       ✓
Overview of Studio 5000 Logix Designer software       ✓       ✓         Overview of Rockwell product compatibility website       ✓       ✓         How to upgrade (flash) logix controller firmware       ✓       ✓         Launching software and establishing connectivity       ✓       ✓         Navigating Studio 5000 software features       ✓       ✓         Basic logic programming       ✓       ✓         Adding local and controller tags       ✓       ✓         Adding rungs to the main routine       ✓       ✓         Adding rungs to the main routine       ✓       ✓         Adding rungs in program and run modes       ✓       ✓         Online/off-line editing       ✓       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓       ✓       ✓         Ethernet remote I/O adapter setup and operation       ✓       ✓       ✓       ✓       ✓         Aolig point I/O setup and operation       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       ✓       <
Overview of Rockwell product compatibility website       ✓       ✓         How to upgrade (flash) logix controller firmware       ✓       ✓         Launching software and establishing connectivity       ✓       ✓         Navigating Studio 5000 software features       ✓       ✓         Basic logic programming       ✓       ✓         Adding local and controller tags       ✓       ✓         Adding rungs to the main routine       ✓       ✓         Adding instructions to rungs       ✓       ✓         Editing rungs in program and run modes       ✓       ✓         Online/off-line editing       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓         Forcing inputs and outputs       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓         Ethernet remote I/O adapter setup and operation       ✓       ✓         Digital point I/O setup and operation       ✓       ✓         AOI (add on instruction) identification and evaluation       ✓       ✓         Very high speed counter setup and operation       ✓       ✓         Indicating and operation       ✓       ✓       ✓
How to upgrade (flash) logix controller firmware       ✓       ✓         Launching software and establishing connectivity       ✓       ✓         Navigating Studio 5000 software features       ✓       ✓         Basic logic programming       ✓       ✓         Adding local and controller tags       ✓       ✓         Adding rungs to the main routine       ✓       ✓         Adding instructions to rungs       ✓       ✓         Editing rungs in program and run modes       ✓       ✓         Online/off-line editing       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓         Forcing inputs and outputs       ✓       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓       ✓         Ethernet remote I//0 adapter setup and operation       ✓       ✓       ✓         Jigital point I/O setup and operation       ✓       ✓       ✓         AOI (add on instruction) identification and evaluation       ✓       ✓       ✓         Very high speed counter setup and operation       ✓       ✓       ✓       ✓         Idid ad n instruction id entification and evaluation       ✓       ✓       ✓       ✓       ✓       ✓       ✓<
Launching software and establishing connectivity       ✓       ✓         Navigating Studio 5000 software features       ✓       ✓         Basic logic programming       ✓       ✓         Adding local and controller tags       ✓       ✓         Adding rungs to the main routine       ✓       ✓         Adding instructions to rungs       ✓       ✓         Editing rungs in program and run modes       ✓       ✓         Online/off-line editing       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓         Forcing inputs and outputs       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓         Ethernet remote I/O adapter setup and operation       ✓       ✓         Digital point I/O setup and operation       ✓       ✓         AOI (add on instruction) identification and evaluation       ✓       ✓         Very high speed counter setup and operation       ✓       ✓         Urgerstanding and operation       ✓       ✓       ✓
Navigating Studio 5000 software features       ✓          Basic logic programming       ✓          Adding local and controller tags       ✓          Adding rungs to the main routine       ✓          Adding instructions to rungs       ✓          Editing rungs in program and run modes       ✓          Online/off-line editing       ✓          Uploading/downloading and running a ladder logic program       ✓          Forcing inputs and outputs       ✓          Ethernet static and dynamic IP address setup       ✓          Ethernet remote I/O adapter setup and operation       ✓          Digital point I/O setup and operation       ✓          AOI (add on instruction) identification and evaluation       ✓          Very high speed counter setup and operation       ✓          Urgating and operating periodic and event tasks       ✓
Basic logic programming       V       Image: Constraint of the main sector of the main routine         Adding rungs to the main routine       V       Image: Constraint of the main routine         Adding instructions to rungs       V       Image: Constraint of the main routine         Adding instructions to rungs       V       Image: Constraint of the main routine         Adding instructions to rungs       V       Image: Constraint of the main routine         Adding rungs in program and run modes       V       Image: Constraint of the main routine         Online/off-line editing       V       Image: Constraint of the main routine         Uploading/downloading and running a ladder logic program       V       Image: Constraint of the main routine         Forcing inputs and outputs       V       Image: Constraint of the main routine       Image: Constraint of the main routine         Ethernet static and dynamic IP address setup       V       Image: Constraint of the main routine       Image: Constraint of the main routine         Digital point I/O adapter setup and operation       V       Image: Constraint of the main routine       Image: Constraint of the main routine         AOI (add on instruction) identification and evaluation       V       Image: Constraint of the main routine       Image: Constraint of the main routine         Very high speed counter setup and operation       V       Image: Constraint routin
Adding local and controller tags       ✓          Adding rungs to the main routine       ✓          Adding instructions to rungs       ✓          Editing rungs in program and run modes       ✓          Online/off-line editing       ✓          Uploading/downloading and running a ladder logic program       ✓          Forcing inputs and outputs       ✓          Ethernet static and dynamic IP address setup       ✓          Ethernet remote I/O adapter setup and operation       ✓          Digital point I/O setup and operation       ✓          Adol (add on instruction) identification and evaluation       ✓          Very high speed counter setup and operation       ✓          Urgerstanding the difference between global and local tags       ✓
Adding rungs to the main routine       ✓       ✓         Adding instructions to rungs       ✓       ✓         Editing rungs in program and run modes       ✓       ✓         Online/off-line editing       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓         Forcing inputs and outputs       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓         Ethernet remote I/O adapter setup and operation       ✓       ✓         Digital point I/O setup and operation       ✓       ✓         Aol (add on instruction) identification and evaluation       ✓       ✓         Very high speed counter setup and operation       ✓       ✓         Understanding the difference between global and local tags       ✓       ✓
Adding instructions to rungs       ✓       ✓         Editing rungs in program and run modes       ✓       ✓         Online/off-line editing       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓         Forcing inputs and outputs       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓         Ethernet remote I/O adapter setup and operation       ✓       ✓         Digital point I/O setup and operation       ✓       ✓         Aol( add on instruction) identification and evaluation       ✓       ✓         Very high speed counter setup and operation       ✓       ✓         Urgerstanding the difference between global and local tags       ✓       ✓
Editing rungs in program and run modes       ✓       ✓         Online/off-line editing       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓         Forcing inputs and outputs       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓         Ethernet remote I/O adapter setup and operation       ✓       ✓         Digital point I/O setup and operation       ✓       ✓         Analog point I/O setup and operation       ✓       ✓         AOI (add on instruction) identification and evaluation       ✓       ✓         Very high speed counter setup and operation       ✓       ✓         Understanding the difference between global and local tags       ✓       ✓
Online/off-line editing       ✓       ✓         Uploading/downloading and running a ladder logic program       ✓       ✓         Forcing inputs and outputs       ✓       ✓         Ethernet static and dynamic IP address setup       ✓       ✓         Ethernet remote I/O adapter setup and operation       ✓       ✓         Digital point I/O setup and operation       ✓       ✓         Analog point I/O setup and operation       ✓       ✓         AOI (add on instruction) identification and evaluation       ✓       ✓         Very high speed counter setup and operation       ✓       ✓         Understanding the difference between global and local tags       ✓       ✓
Uploading/downloading and running a ladder logic program       ✓          Forcing inputs and outputs       ✓          Ethernet static and dynamic IP address setup       ✓          Ethernet remote I/O adapter setup and operation       ✓          Digital point I/O setup and operation       ✓          Analog point I/O setup and operation       ✓          AOI (add on instruction) identification and evaluation       ✓          Very high speed counter setup and operation       ✓          Urgerstanding the difference between global and local tags       ✓
Forcing inputs and outputs       V       Image: Constraint of the second
Ethernet static and dynamic IP address setup $\checkmark$ $\checkmark$ $\checkmark$ Ethernet remote I/O adapter setup and operation $\checkmark$ $\checkmark$ $\checkmark$ Digital point I/O setup and operation $\checkmark$ $\checkmark$ $\checkmark$ Analog point I/O setup and operation $\checkmark$ $\checkmark$ $\checkmark$ Analog point I/O setup and operation $\checkmark$ $\checkmark$ $\checkmark$ AOI (add on instruction) identification and evaluation $\checkmark$ $\checkmark$ $\checkmark$ Very high speed counter setup and operation $\checkmark$ $\checkmark$ $\checkmark$ Creating and operating periodic and event tasks $\checkmark$ $\checkmark$ $\checkmark$ Understanding the difference between global and local tags $\checkmark$ $\checkmark$ $\checkmark$
Ethernet remote I/O adapter setup and operation       ✓          Digital point I/O setup and operation       ✓          Analog point I/O setup and operation       ✓          AOI (add on instruction) identification and evaluation       ✓          Very high speed counter setup and operation       ✓          Creating and operating periodic and event tasks       ✓
Digital point I/O setup and operation       ✓          Analog point I/O setup and operation       ✓          AOI (add on instruction) identification and evaluation       ✓          Very high speed counter setup and operation       ✓          Creating and operating periodic and event tasks       ✓          Understanding the difference between global and local tags       ✓
Analog point I/O setup and operation       ✓          AOI (add on instruction) identification and evaluation       ✓          Very high speed counter setup and operation       ✓          Creating and operating periodic and event tasks       ✓          Understanding the difference between global and local tags       ✓
AOI (add on instruction) identification and evaluation       ✓       ✓         Very high speed counter setup and operation       ✓       ✓         Creating and operating periodic and event tasks       ✓       ✓         Understanding the difference between global and local tags       ✓       ✓
Very high speed counter setup and operation       V         Creating and operating periodic and event tasks       V         Understanding the difference between global and local tags       V
Creating and operating periodic and event tasks $$
Understanding the difference between global and local tags $$
User-defined data types creation and functionality $\checkmark$
Creating custom AOI (add on instructions)
Writing function block diagram routines 🗸 🗸 🗸
Writing structured text routines 🗸 🗸 🗸
Calling routines via the JSR instruction $\checkmark$
ASCII module setup and operations 🗸 🗸
Messaging (produced and consumed)
Ethernet DLR (device level ring) setup and operation
Trending V
Discuss PID theoretical operation
In-depth discussion on the PIDE instruction functionality
Writing function block diagrams using PIDE instruction
Writing complete functioning PID applications using personal PLC workstation
Discuss over damped, critically damped, and under damped performance
Testing PIDE applications using PLC demo workstation
Manual tuning proportional, integral, and differential parameters
Auto tuning proportional, integral, and differential parameters
Testing PID performance when adding external disturbances to the system 🗸
Basic troubleshooting (requires 1-day basic or equivalent knowledge) √
Intermediate troubleshooting (requires 1-day intermediate or equivalent knowledge)
Advanced troubleshooting (requires 1-day advanced or equivalent knowledge)
PID troubleshooting (requires 1-day PID or equivalent knowledge)