Building Automation Systems Troubleshooting

Who is this course for?	**Installers and operators of building automation systems, 24/7 monitoring personnel, console operators, stand-alone operators, HVAC system troubleshooters, in-house maintenance staff, renovation teams, service technicians, and field personnel**
Format	Instructor-led training with extensive hands-on tasks. The class environment is relaxed, and student participation is encouraged. Each student workstation includes a WebCTRL server and a set of online ALC hardware.
Length	2 days
Objective	Attendees will use WebCTRL, digital multimeters, wire strippers, jeweler screwdrivers, ARCNET wire, power supplies, DDC controllers, actuators, sensors, and relays to determine where problems are located, who to send, and how to correct the issue.
Prerequisites	Basic knowledge operating a Windows computer
Course Outline	**WebCTRL Interface** • Building trend graphs to diagnose how well HVAC equipment is performing • Understand and correct sensor reading -60.2 degrees, 72 degrees, and 296 degrees • Zones and equipment (purple)—learn the steps to identify and correct • WebCTRL Alarm Log - Excessive COV subscription updates detected - The dead module timeout alarm is active DEV:x is not responding, where x=2401154 • Reading logic to verify written sequence of control • Equipment is always RED on graphics—learn how to rectify • Using Modstat information to troubleshoot (reconfigs, etc.) **Controller Checks** • ARCNET communication lights—what do the lights look like if not communicating • MSTP communication lights—what do the lights look like if not communicating • When building not communicating - Link/LAN lights - Port configuration • I can ping router, but can't reach Modstat—typically ARCNET communication issue, divide and conquer • If 24VAC power to controller is outside =/- 10 percent tolerance, communication issues can occur

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Building Automation Systems Troubleshooting (cont)

Course Outline

Ethernet Checks
- IP/ethernet communication LEDs—what do the lights look like if not normal (link and activity LED color)
- Subnet Mask IP setting is correct
- Gateway IP setting is correct

Cabling Checks
- Verify ARCNET communication connection (wire tight)

Signal Checks
- Confirm output voltages via volt meter
- Confirm proper wiring connection and output jumpers

Sensors Checks
- Move ZS sensors to another controller with different program (must download memory)
- Reformat ZS sensors

Intermittent Problems
- All field wiring connections tight and secure
- Verify proper mounting of controller (nothing is touching circuit board on back of controller)
- PROTs and REP485 installed correctly
- Check communication LEDs for reconfigs—check Modstat

Power Problems
- 24VAC +/- 10 percent

Review and Conclusion