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# HVACR CONTRACTOR GUIDE TO buying, specifying, selling and servicing facility management control systems

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# Simplicity™ Changing an Industry's Expectations

**Today it is getting hard for service contractors and dealers to keep experienced technicians. In the future this trend is likely to continue, due in part to the declining enrollment in technical votech schools for HVAC technicians. As the pool of qualified technicians gets smaller, the quality of service will be affected.**

Almost 30 years ago the electronic ignition and computer control changed the automobile industry. And today, electronic controls are poised to change the HVAC industry. In the years before the computer controlled automobile, master mechanics had years of experience and could diagnose the automobile by the sounds it made. Today a mechanic needs only to hook up a computer to diagnose problems, and use the troubleshooting information supplied by the computer to identify the root cause down to the component. This eventually put the smaller independent garages out of business, due to the high cost of training and computer diagnostic equipment.

The HVAC service business will not survive, as we know it today, if the same control evolution that changed the automobile industry becomes the standard requirement in the HVAC industry and the technician base continues its decline. In the future, to support the service technician, equipment manufacturers must develop equipment controls that are smarter and diagnose problems for the technician. And, if a diagnostic tool is required, it must be inexpensive and easy to use such as a PDA (Personal Digital Assistant) like a Palm Pilot™, or inexpensive software for a laptop computer.

Today's service contractors and dealers are finding it more and more difficult to keep experienced technicians. This appears to be the number one issue affecting contractors and dealers. In the future this trend is likely to continue, due in part to the declining enrollment in technical votech schools for HVAC technicians. Therefore, if the pool of qualified technicians continues to get smaller, it is logical to assume the quality of service will be affected as well. This article will show that equipment manufacturers can respond with control solutions that take into account the changing standards and industry needs to counter the unfavorable affects of a declining pool of technicians and service quality.

Most HVAC equipment does not have electronic controls and the safety controls are daisy chained together using a lockout relay for the lockout function (See Figure 1), making it difficult to diagnose problems that may occur during normal operation. The lockout relay has a very high resistive coil that will only allow current to flow through it when one of the safeties opens. When this happens, the lockout relay will energize, opening its contact in the safety chain, causing a hard lockout. When a service technician opens the unit they have no way to tell what caused the lockout to occur. This technician must be highly qualified with years of experience in order to find the problem. The only way to release the lockout condition is for the

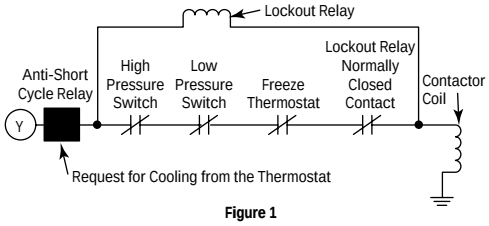
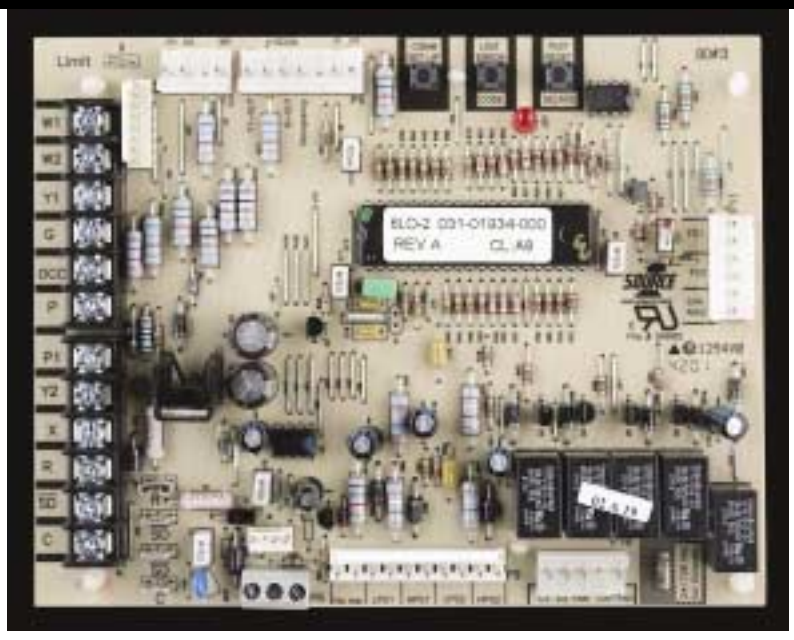



**Figure 1**

thermostat to stop calling for cooling or a service technician to power down the unit. This is typical wiring practice for a small rooftop unit today.

When a manufacturer uses BAS (Building Automation System) unit controls, they monitor the daisy chained safety controls in one spot (if at all) as shown in Figure 2. This control typically costs



hundreds of dollars and is capable of networked occupancy scheduling. Again, in this scenario, the technician must be highly experienced in order to find the problem, because there is no indication as to what caused the lockout to occur. In this situation the technician must have been trained on the highly complicated BAS control. In most cases the technician must know something about electronics before they go to school on a specific BAS control. To even commission these controls on a network, a technician must set a network device address. Using an 8-position dipswitch that is coded in binary, the technician sets a decimal device address. On some manufacturers BAS controls, the technician may have to do some programming to make the control functional. In most cases the technician will set up a monitoring program for the building owner that costs hundreds and sometime thousands of dollars. This requires a highly paid technician that many dealers and contractors cannot afford.

**The *Simplicity*™ control uses large screw terminals for the thermostat input signals, designed for a standard size screwdriver. For easy access, the function buttons have been strategically placed at the top center of the board. The board was designed using the York UPG Philosophy of "Keep Complexity in Engineering", which means, designs should be simple and intuitive to use, because customers deserve *Simplicity*™.**

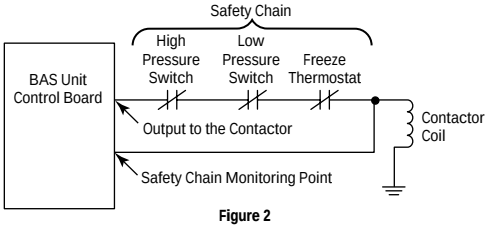



**Figure 2**

To address these issues and concerns, the *Simplicity*™ control was developed and applied for just a few dollars more than an electromechanical control system. *Simplicity*™ protects the unit, reduces nuisance problems, and helps the service technician troubleshoot the equipment. It is wired into the unit differently than any other manufacturer's standard control board (See Figure 3). This new control monitors each safety independently, so it can tell the service technician exactly what caused the unit to lockout. The *Simplicity*™ control uses flash codes on a LED that even a novice technician can interpret. To commission the *Simplicity*™ control on a network (set the control's network device address), a technician needs only to push a button on the *Simplicity*™ control within each unit. The *Simplicity*™ control will scan the communication bus and find its own device address without the technician having to decode a binary dipswitch. The startup technician does not have to be a trained BAS technician to startup and commission a unit utilizing *Simplicity*™. The control stores alarms in non-volatile memory so they can be recalled even after the unit has been powered down and back up. This is a very important feature because the technician should remove power from the unit before servicing it, however, doing so will erase all error codes from a typical control board. After the technician opens the unit and powers it back up, just push a button on the *Simplicity*™ control to recall the last five alarms. The first flash code they see will be the reason the service call was made.

The *Simplicity*™ control reduces nuisance problems and downtime by using "*Triple Slide*™" technology. *Triple Slide*™ is a three times and you're out logic. A safety must trip three times in two hours before the control will lockout the compressor. This is an important feature when you have a 95° design day and it is 105° outside, because high pressure switch trips are common under these circumstances, resulting in a compressor lockout and what should be an unnecessary service call. With the *Simplicity*™ control, the unit would continue to operate unless a hard lockout occurs.

If the supply of technicians continues to drop, it becomes the responsibility of the OEM to develop controls like *Simplicity*™ to address these changing industry demands. Controls of the future and even today must be able to monitor the equipment they are used in, diagnose problems as they occur and communicate alarms to the technician when necessary. The *Simplicity*™ control system is one OEM's answer to these concerns. For more information on *Simplicity*™ please visit www.yorkupg.com to view an online *Simplicity*™ presentation and learn more about the features of the *Simplicity*™ Control System. ■

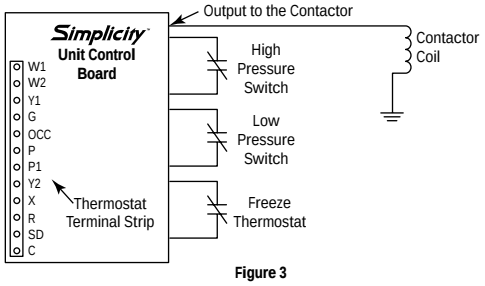
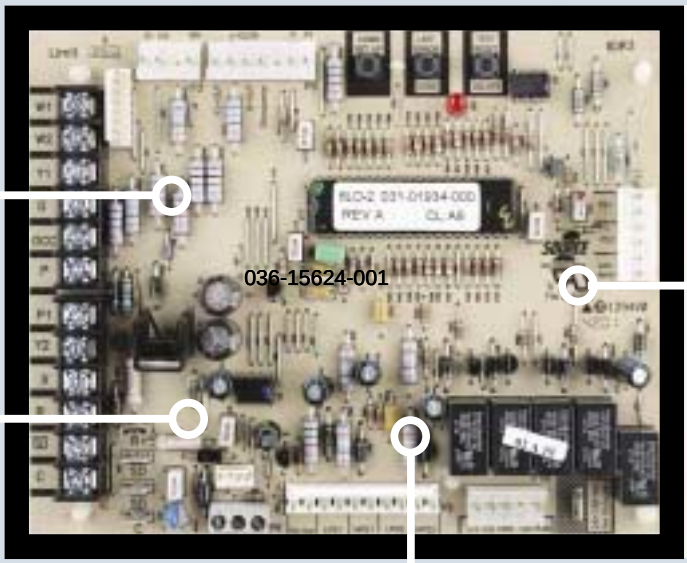



**Figure 3**

# The most significant development in controls systems history:

# Simplicity.™




Good news for HVAC contractors who thought controls jobs were too complex for their business. York's Simplicity Controls System is a sophisticated controls solution that's so easy to set up, program, and monitor, you don't need a controls engineer. You really can do this—and it will help your business grow.

Here's why: Simplicity's built-in logic control operates the unit, telling you what's wrong without nuisance service calls. It communicates with your PC seamlessly and affordably. Its board is easy to set up and use with one-button network addressing. And with Simplicity Wireless, you can achieve 24/7 monitoring with dramatically lower costs, compared with other systems.

Simplicity is in the York Predator,® Millennium® Split Systems and Sunline Magnum,™ with more coming soon. It's just the latest design from a company with a history of 128 years of innovation. For more information, call 877-453-YORK today or visit www.yorkupg.com.

Simplicity™ Controls System

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