

Section 6.5

Wiring Alternatives

The Network System design offers flexibility and options for connecting Digital Zone Control Modules (DZCMs) and other Field Modules, such as the Furnace and Air Condition Control (FAC), to the Router Main Control (RTR). Two Network System parts that provide this wiring flexibility are Network Y-Connector (A9011003) and the Network Wire Converter (A9011002).

Network Y-Connector

The RTR has 10 port connections: five for DZCMs and five for Field Modules to support a total of 23 boards. The installer can use Network Y-Connectors when a particular installation requires more than five DZCMs or more than five Field Modules.

Modules must be connected sequentially (module one first, module two second, etc.). Skipping ports causes communication failures. See **Figure 6.5-1**; the red lines depict segments where communication will be lost due to skipped ports.



Important: Port connections are split on the RTR for DZCMs and Field Modules. Always connect DZCMs to the ports labeled for DZCMs, and connect Field Modules to the ports labeled for Field Modules. Failure to connect the modules to the correct type of port will cause communication conflicts and prevent the system from operating properly.



Figure 6.5-1: Incorrect Module Connections

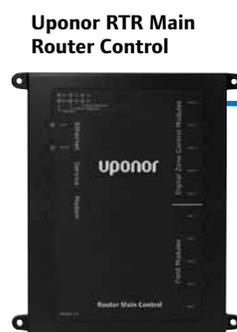


Figure 6.5-3: Multiple Y-Connector Connections

Examples of Y-Connector Use

The following illustrates examples of Network Y-Connector use.

Example 1

Figure 6.5-2 shows multiple DZCMs wired to the RTR using one Cat5 wire. This use of a Y-Connector greatly simplifies system wiring, especially when compared to a conventional system with wires running from each thermostat to the mechanical room.

Example 2

Figure 6.5-3 shows an example using multiple Network Y-Connectors.

There is no limit on the number of Y-Connectors that can be used to connect the modules. However, for any one port, the total length of Cat5 wire cannot exceed 1,500 feet.

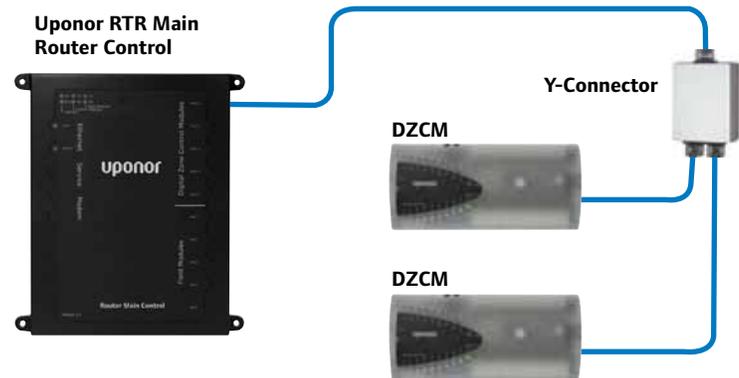
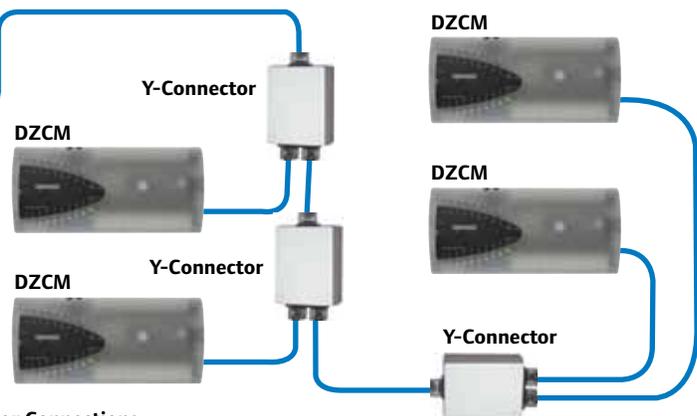


Figure 6.5-2: Simple Y-Connector Connection



Network Wire Converter

The Network Wire Converter can be used in cases where a different type of wire is needed from the type that is already in place. A retrofit to an existing system is an obvious example of where the Network Wire Converter is helpful.

While Cat5 wire is preferred for Network System communication, 18/2 thermostat wire is a viable option. Each of these types of wire has advantages. Properly constructed Cat5 eliminates the potential for rolling polarity of the wires. The upside of 18/2 thermostat wire is that it can be run twice the distance than Cat5 with no communication loss.

Figure 6.5-4 shows a typical wiring example using Wire Converters. Each conversion will require a pair of Network Wire Converters.

Note: This connection is polarity sensitive. The wire coding must be followed on both ends of the connection. In this example, the red wire connects to the positive terminals, and the black wire connects to the negative terminals.

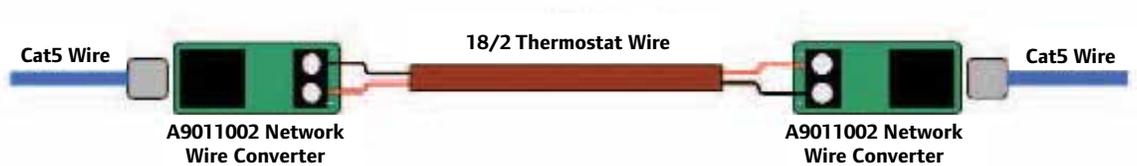


Figure 6.5-4: Network Wire Converter

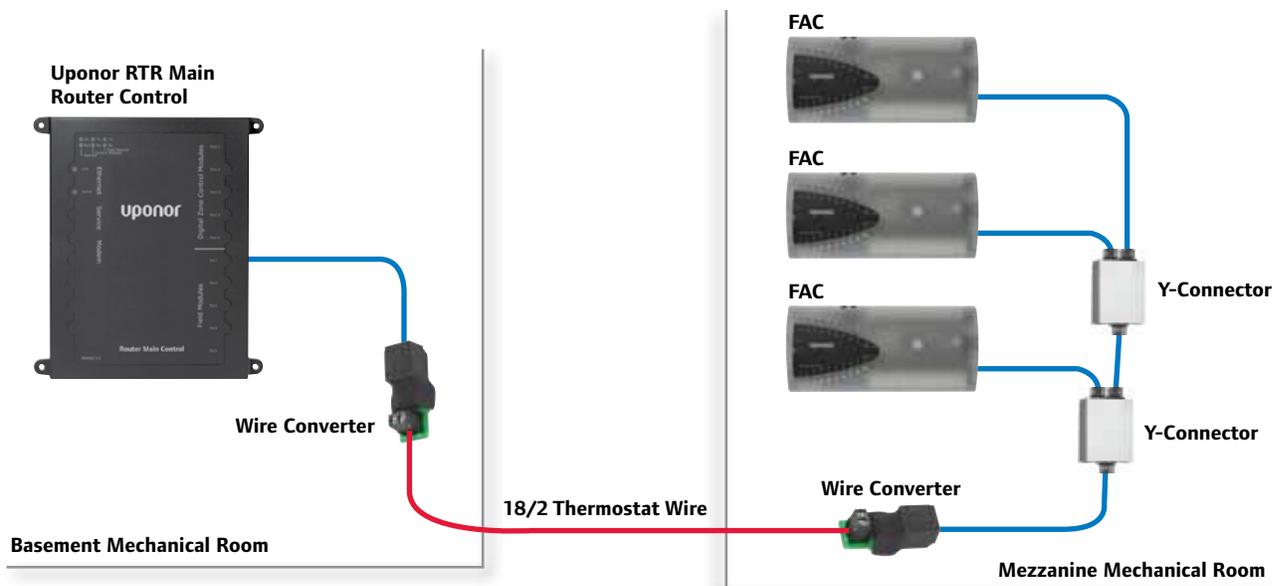


Figure 6.5-5: Combination Example

A real-life example shows how Y-Connectors and Wire Converters can provide a solution for installation mistakes. A house built in New York included two mechanical rooms: one in the basement and another on the mezzanine. The upper mezzanine housed three air handlers and three FACs. The two mechanical rooms were about 150 feet and three floors apart, but the electrician ran only an 18/4 thermostat wire between them. The homeowner would not allow running a chase on the side of the house, so the option appeared to be opening walls to run the right number of wires. However, a combination of Y-Connectors and Wire Converters provided a much better solution. **Figure 6.5-5** shows how the wiring problem was resolved.