

# Replacement HVAC Control for Amtrak Heritage Systems

A near drop-in replacement for 1970s era passenger car heating and air conditioning control systems that are now at the end of their service lives, using the same primary electrical connector.



**NW**  
www.nwrail.com

Northwest Rail Electric Inc.  
2630 SE Steele Street  
Portland, Oregon 97202  
503/231-4808, Fax 503/230-0572

Starting in the 1970s, Amtrak upgraded and replaced heating and air conditioning systems on the passenger cars it had inherited from other railroads. For a control system, these cars also received a standardized control system. Today, while many of the heating and air conditioning systems remain serviceable, the standardized control systems have reached end of service life.

Thus, Northwest Rail Electric has developed the NW-603-INT control system to be a near drop-in replacement for these control systems. Features include:

- ▶ All functions of the original system are retained, including the damper.
- ▶ Dehumidification control is added, rather than the forced dehumidification on the original systems. This significantly improves system energy use.

- ▶ The system control box is slightly smaller and has the same primary connector (left side of photo) as the original system. This allows for very easy installation of this part of the system: unplug and remove the existing control box, drill new mounting holes, and the new control box is plugged into the same spot as the old control box.



- ▶ The system control box is equipped with indicator lights, as shown on the cover, giving the system status, just as the old system did. Unlike the old system, the indicator lights are LEDs to provide maximum service life.
- ▶ Access into the control box is with two quick-release latches.
- ▶ A new add-on component is the temperature control and display module, depicted above right. This control may be mounted in a location that is quite remote from the primary control box, in an easy to access location. The panel features temperature and dehumidification control settings, system on-off switches, an emergency cooling switch, and a temperature display that shows the set point temperature and the current temperature being detected.
- ▶ An adjustable system start-up timer prevents immediate operation, in order to allow staged start up of several cars.
- ▶ Adjustable start-up timers are also installed on heat circuits, to allow for additional starting load modulation.

- ▶ The temperature control unit is designed for mounting on a standard 19 inch electrical component rack, and various mounting brackets are also available for installation in a number of other situations.

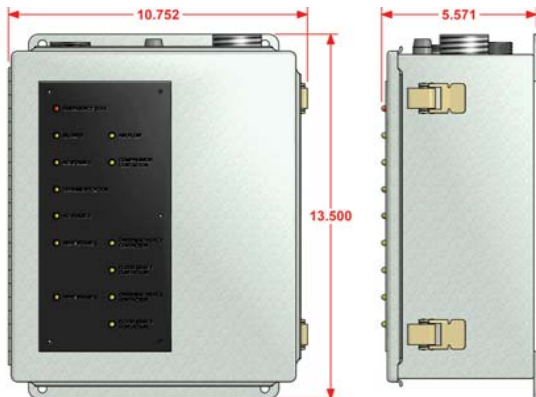


- ▶ The temperature control unit is connected to the control box with a cable with connectors to allow for quick installation. The temperature controls may be mounted close to the control box on a single panel, as shown at right, or located quite distant from the box in order to provide a convenient control location.



- ▶ The multiple thermostats that were used in the original systems are dispensed with, and instead replaced with a single temperature and humidity sensor that is located in a key location in the car to provide the best temperature feedback.
- ▶ The thermostat is a solid state design and has a proven record in hundreds of passenger cars with Northwest Rail Electric HVAC control systems, operating from Saint Kitts and Panama to Alaska.
- ▶ The design of the system is well proven and reliable, with no failures reported to Northwest Rail Electric. The first several systems went into service in 1997 and are still in regular service today. Nearly 50 units are currently in service.
- ▶ Virtually all of the components used in the NW-603-INT are easy to obtain industrial control parts. Replacement parts may be easily located.

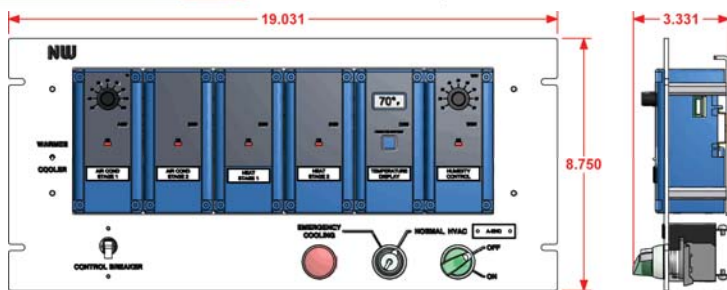
**Dimensions:** See following page for control box and control panel dimensions. This does not include dimensions of the thermostat or the control panel brackets.



**NOTE:**

A number of different mounting bracket styles for the control panel (below) have been developed over the years for various mounting situations.

With no mounting brackets, the control panel fits a standard 19 inch control rack.



Portland, Oregon based Northwest Rail Electric is a specialized manufacturer of electrical equipment for rail passenger cars. The product range includes heating and air conditioning, electrical control equipment, head end power parts, and generator controls. System automation packages allow passenger car generators to start and operate automatically when HEP or wayside power fails. Battery charging and other direct current circuits have a variety of control options. Custom electrical control and HVAC systems have been developed to fit a number of unusual passenger car needs.

A small business itself, Northwest Rail Electric understands the unique needs of the various tourist railroads and railroad museums which have provided its customer base over the years. Business car fleets in all major North American freight railroads have at least some equipment from Northwest Rail Electric as well, as we understand the demanding environment in which rail passenger car equipment operates. With systems installed in passenger cars operating from St. Kitts and Panama to Alaska, our systems have a proven record in a wide variety of operating conditions.

Give us a call today to see how we can help you with your rail passenger car needs.

**NORTHWEST RAIL ELECTRIC, INC.**

**Portland Office:**  
Robert C. Jackson

2630 SE Steele Street  
Portland, Oregon 97202

(503) 231-4808  
Fax (503) 230-0572

**Web Site:**  
<http://www.nwrail.com>

**E-Mail:**  
[rjackson@nwrail.com](mailto:rjackson@nwrail.com)