

Wireless on-off-auto pneumatic switching control ecWizard PESC-F100

The ecWizard connects between the thermostat/controller and the controlled device (usually a damper actuator or any heating/cooling valve.) The ecWizard is configured to control the pneumatic switching valves by providing on, off, and auto control. Powered by battery, 24V or optional energy harvesting, and has four hard wired universal inputs. Input values and output commands are transmitted wirelessly to the ecHost.

Typical installation would be to mount the device in the ceiling next to the VAV Box. Wired or wireless room temperature sensors transmit information to the remote communications controller (ecHost), which is a Tridium JACE with a Jennic send receive radio.

The ecHost combines integrated control, supervision, data logging, alarming, scheduling, and network management functions with internet and web serving capabilities into a compact platform.

Niagara AX supports a wide range of protocols including: LonWorks™, BACnet™, Modbus, oBIX, and Internet standards

Features

- 4 Universal inputs, for:
Room temp, CFM, supply air and branch control pressure.
- Individual zone schedules with holidays and optimize start stop energy-saving sequences.
- Alarms.
- Adjustable dead band setpoints.
- Complete shut off of air (CFM), heating, and cooling in unoccupied mode.
- Room thermostat continues to control if the ecWizard loses communications.
- Will not become obsolete and is compatible to future all electric upgrades with two analog outputs to control future electric actuators and valves.
- Temperature set point limitations.
- Trend logs/data logs for after hour billing, supply air, room air, lighting, motion, CFM, and heating branch pressure cooling branch pressures are among many opportunities utilizing the powerful Niagara software and the ecHost.
- Large valve switching ports are not as susceptible to contamination like other thermostat and wireless mounted controllers.
- Compatible with demand response programs.
- Utilizes Tridium's Sedona framework and a powerful Jennic wireless communications.



OPTIONS

- Energy harvesting or large battery pack
- Wired room Sensor through ceiling tile or wall mounted.
- Supply air temperature sensor.
- CFM sensor.
- Pneumatic main air pressure sensor.
- Pneumatic branch/signal air heating sensor.
- Pneumatic branch/signal air cooling sensor.
- Motion/lighting system detector digital input.

MODES OF CONTROL

- Auto: Provides a direct unaffected control from the existing pneumatic thermostat.
- Off: Shuts off the heating and/or cooling to the controlled device.
- On: Overrides the thermostat and provides full open for morning warm-up with cooling only VAV.
- Digital on-off for fan control.
- Digital on-off for electric heat.

Wireless Connectivity

- 2.4 GHz IEEE802.15.4 and ZigBee compliant. RPSMA connector. 128-Bit AES Encryption.
- 6LoWPAN - Low power wireless network
- Receiver/Router: up to 3500 ft. (1 km)
- Receiver/Sensor: up to 700 ft. (230 m)
- In-building Range per hop (Sensor to Repeater or Repeater to Repeater)
- 120 ft. (40 m) in typical commercial office building; range heavily dependent on building material and layout.

Power

- 2 C-Type Batteries or 24V
- Expected battery life 2-6 years, pending upon the usage.

I/O

- 4 universal inputs supporting temperature, resistance, voltage, current and digital.
- 2 digital outputs and two analog outputs. Heating and cooling outputs controlling two specially designed pneumatic three-way valves.

Antenna

- External antennas (RPSMA) or internal ceramic antenna.
- Remote 6' ft antenna extension option.

Dimensions

6.75x 4.75x 2.0 in. (172x 120 x 51 mm)

Shipping Weight

12 oz (0.34 kg)

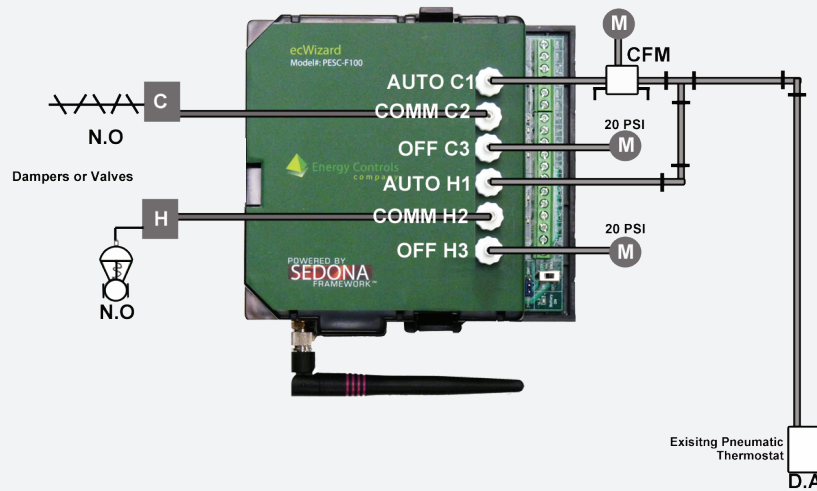
Sequence of Operation

Cooling

When the valve is in the auto position then thermostat pressure enters the AUTO C1 port and exits out the COMM C2 port to control the cooling actuator.

When the valve is in the off position, then the flow from the thermostat is stopped and the OFF C3 port opens, allowing 20 PSI to close off the cooling actuator through the COMM C2 port.

Each switching valve is controlled independently



Heating

When the valve is in the auto position then thermostat pressure enters the AUTO H1 port and exits out the COMM H2 port to control the heating valve.

When the valve is in the off position, then the flow from the thermostat is stopped and the OFF H3 port opens, allowing 20 PSI to close off the heating valve through the COMM H2 port.

Notes:

The OFF C3 port of the switching Valve will change from the exhaust to 20 psi to accommodate the controlled devices direct acting or reverse acting normally open or normally closed set up.

Example: If the heating valve is normally open, then 20 psi is plugged into the OFF H3 valve port. If the heating valve is normally closed, then the OFF H3 port is exhausted.

Example: If the cooling damper is normally open, then 20 psi is plugged into the OFF C3 port. If the cooling damper is normally closed, then the OFF C3 port is exhausted.