Carrier's WSHP Open controller is an integrated component of a Carrier water source heat pump. The WSHP Open controller continuously monitors and regulates water source heat pump operation with reliability and precision. This advanced controller features a sophisticated, factory-engineered control program that provides optimum performance and energy efficiency. For added flexibility, the WSHP Open controller is capable of stand-alone operation, or, it can be integrated with any other Building Automation System utilizing the BACnet, Modbus®, LonWorks®, or N2 protocols.

**Application Features**

- Controls 2 stages of DX cooling to maintain space temperature setpoint
- Integrated 2-position or modulating waterside economizer for optimized mechanical cooling (ASHRAE® 90.1)
- Controls modulating or 2-position outside air damper to meet ASHRAE 62 ventilation requirements
- Built-in advanced control routines for zone level humidity control or zone level demand control ventilation (ASHRAE 62)
- Supports auxiliary modulating reheat, 2-position hot water/steam reheat, or electric heat
- Independent fan speed and compressor staging ensures quiet operation and maximizes latent heat removal for increased occupant comfort
- Modulating fan speed and compressor staging ensures safe unit operation

**System Benefits**

- Integrated Carrier airside linkage algorithm for plug-and-play integration with the Carrier WSHP System
- Fully plug-and-play with the Carrier i-Vu Building Automation System
- Supports demand limiting for maximum energy savings
- Compatible with i-Vu Tenant Billing for tracking tenants’ after-hours energy usage

**Hardware Features**

- Compatible with Aquazone™ horizontal water source heat pumps and vertical water source heat pumps with Puron® refrigerant
- Integrates easily into any BAS using BACnet, Modbus, LonWorks®, or N2 protocols
- On-board hardware clock, remote occupancy input, and support for Carrier communicating/thermistor sensors provide stand-alone operation
- Easy startup and configuration with i-Vu User Interfaces

*Requires LON Option Card (LON-OC)
The Carrier i-Vu Building Automation System

WSHP Open
Integrated Water Source Heat Pump Control

BACnet Support
Advanced Application Controller (B-AAC), as defined in BACnet 135-2001 Annex L

Communication Ports
Network Comm port: EIA-485 port for BACnet MS/TP or ARCNET 156 kbps, Modbus RTU, or N2 communications (protocol and baud rate are DIP switch selectable);
Comm Option port: For connecting a LON Option Card;
Local Access port: For system start-up and troubleshooting (115.2 kbps);
RNet port: For connecting Carrier communicating room sensors and Carrier’s touchscreen user interface

Inputs
4 analog inputs: Dedicated to Relative Humidity, Indoor Air Quality, Supply Air Temperature, and Leaving Condenser Water Temperature. AIs have 10 bit A/D resolution.
4 binary inputs: Stage 1 Compressor Status, Condensate Overflow, Fire/Smoke Detector, and Fan Status (optional)

Outputs
2 analog outputs: 1 dedicated to Outside Air Damper, and 1 configurable for either Auxiliary Reheat or Waterside Economizer. AOs have 10 bit D/A resolution.
8 binary outputs: Supply Fan (low, medium, and high), Compressor Stage 1, Compressor Stage 2, Reversing Valve, Auxiliary Heat/2-position Waterside Economizer, and Dehumidification. Relay contacts rated at 3A max @ 24VAC, configured normally open

Real Time Clock
Battery-backed real time clock keeps track of time in event of power failure

Battery
10-year Lithium CR2032 battery provides a minimum of 10,000 hours of trend data & time retention during power outages

Protection
Incoming power and network connections are protected by non-replaceable internal solid-state polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected against voltage transient and surge events.

Battery
10-year Lithium CR2032 battery provides a minimum of 10,000 hours of trend data & time retention during power outages

Real Time Clock
Battery-backed real time clock keeps track of time in event of power failure

Battery
10-year Lithium CR2032 battery provides a minimum of 10,000 hours of trend data & time retention during power outages

Protection
Incoming power and network connections are protected by non-replaceable internal solid-state polyswitches that reset themselves when the condition that causes a fault returns to normal. The power, network, input, and output connections are also protected against voltage transient and surge events.

Status Indicators
LED status indicators for network communications, run status, error, power, and all digital outputs

Controller Addressing
Rotary dip switches set BACnet MS/TP or ARCNET, Modbus, or N2 address of controller

Listed by
UL-873, FCC Part 15-Subpart B-Class A, CE EN50082-1997

Environmental
Operating: -4 to 158°F (-40 to 70°C) 10 to 95% RH, non-condensing
Storage: -40 to 158°F (-40 to 70°C) 10 to 95% RH, non-condensing

Power Requirements
24VAC ± 10%, 50 to 60Hz, 20 VA power consumption, single Class 2 source only, 100 VA or less

For more information, contact your local Carrier Controls Expert.
Controls Expert Locator: www.carrier.com/controls-experts

© Carrier Corporation 2017. Cat. No. 11-808-469-01 Rev. 04/17
Manufacturer reserves the right to discontinue, or change at any time, specifications or designs, without notice and without incurring obligations. Trademarks are properties of their respective companies and are hereby acknowledged.