



# i-Vu<sup>®</sup> Building Automation System

## WSHP Water-To-Water Open

### Integrated Water Source Heat Pump Control



Carrier's Water-to-Water (W2W) Open controller is an integrated component of a Carrier water-to-water source heat pump. The W2W Open controller continuously monitors and regulates 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 W2W Open controller is capable of stand-alone operation. It can also be integrated with any building automation system using the BACnet, Modbus<sup>®</sup>, LonWorks<sup>®\*</sup>, or N2 protocol.

#### Application Features

- Controls up to 4 stages of capacity (up to 3 compressor stages), to maintain the desired entering or leaving water temperature
- Provides 5 operating modes for manual or automatic system changeover operation
- Provides load water pump output control
- Provides source water pump or 2-position isolation valve control
- May be configured to reset the water temperature proportionally based upon OAT during cooling or heating modes
- In cooling mode, the control has the capability to limit the OAT reset based upon the difference between a measured humidity value and a configured high RH setpoint limit
- For larger installations, a total of up to 8 stages may be controlled as a singular heating or cooling source. One controller will operate as the master, coordinating others in the system.

#### System Benefits

- Integrated Carrier Condenser Water Linkage algorithm for plug-and-play coordination with the source water system when controlled by a Carrier water loop controller
- Fully plug-and-play with the Carrier i-Vu Building Automation System
- Supports demand limiting for maximum energy savings

#### Hardware Features

- Compatible with Carrier's Aquazone<sup>™</sup> water-to-water water source heat pumps with Puron<sup>®</sup> refrigerant (R-410A)
- Integrates easily into any BAS using BACnet, Modbus, LonWorks<sup>\*</sup>, or N2 protocols
- On-board hardware clock, remote occupancy input, and support for communicating/thermistor sensors provide stand-alone operation
- Easy startup and commissioning using i-Vu User Interfaces

\*Requires LON Option Card (p/n LON-OC)

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#### Specifications

<b>BACnet Support</b>	Advanced Application Controller (B-AAC), as defined in BACnet 135-2012 Annex L Protocol rev. 9
<b>Communication Ports</b>	<p><b>Network Comm port:</b> EIA-485 port for BACnet MS/TP or ARCNET 156 kbps, Modbus RTU, or N2 communications (protocol and baud rate are DIP switch selectable)</p> <p><b>Comm Option port:</b> For connecting a LON Option Card (p/n LON-OC)</p> <p><b>Local Access port:</b> For system start-up and troubleshooting (115.2 kbps)</p> <p><b>Rnet port:</b> For connecting a T1 temperature sensor</p>
<b>Inputs</b>	<p><b>5 analog inputs:</b> Leaving Load Water Temperature, Entering Load Water Temperature (optional), Leaving Source Water Temperature, Outdoor Air Temperature (optional), and Relative Humidity (optional). All AI's have 10 bit A/D resolution.</p> <p><b>5 binary inputs:</b> Compressor 1 Status, Compressor 2 Status, Compressor 3 Status, Remote Occupancy Contact, and Safety Shutdown</p>
<b>Outputs</b>	<b>8 binary outputs:</b> Stage 1 through Stage 4 Capacity Control, Reversing Valve, Source Water Pump/Isolation Valve, Load Water Pump, and Alarm Lamp. Relay contacts rated at 3A max @ 24VAC, configured normally open
<b>Real-Time Clock</b>	Battery-backed real time clock keeps track of time in event of power failure
<b>Battery</b>	10-year Lithium CR2032 battery: min of 10,000 hours of trend data & time retention during power outages
<b>Protection</b>	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.
<b>Status Indicators</b>	LED status indicators for network communications, run status, error, power, and all digital outputs
<b>Controller Addressing</b>	Rotary dip switches set BACnet MS/TP or ARCNET, Modbus, or N2 address of controller
<b>Listed By</b>	<b>United States:</b> FCC compliant to Title CFR47, Part 15, Subpart B, Class A; UL Listed, File E143900; CCN PAZX, UL 916, Energy Management Equipment; <b>ANZ:</b> RCM Mark AS/NZS 61000-6-3; <b>Canada:</b> UL Listed File E143900, CCN PAZX7, CAN/CSA C22.2 No. 205 Signal Equip., Industry Canada Compliant ICES-003, Class A; <b>CE Mark</b> Compliant with 2014/30/EU, and RoHS Compliant: 2015/863/EU; <b>UKCA Mark</b> compliant with Electromagnetic Compatibility Regulations 2016 – Gov.UK and RoHS for Electrical and Electronic Equipment 2012
<b>Environmental Operating Range</b>	<p><b>Operating:</b> -40 to 158°F (-40 to 70°C) 10 to 95% RH, non-condensing</p> <p><b>Storage:</b> -40 to 158°F (-40 to 70°C) 10 to 95% RH, non-condensing</p>
<b>Power Requirements</b>	24VAC ± 10%, 50 to 60Hz, 20 VA power consumption Single Class 2 source only, 100 VA or less

