

WHOLE HOUSE COMFORT CONTROLS



Airflow Control

Fresh Air Control

ERV/HRV Control

Whole House Fan Control

Economizer Control

Humidity Control

eControls

Thermostats That Go Beyond Heating and Cooling

Whole house comfort control is a fast, growing trend in both residential new construction and replacement markets. Builders, contractors and homeowners want integrated controls that provide a comfortable, energy efficient home at a competitive cost with improved HERS ratings.

The Comfort365 products control heating and cooling and airflow. Some Comfort365 products include advanced control of fresh air, ERV/HRV units, whole house fans, economizers and humidity control.

Airflow Control

Airflow control provides a uniformly conditioned home that's comfortable in all seasons, at about half the cost of zoning, and with improved energy efficiency. Nighttime airflow option can save homeowners 30% at night and provide a more comfortable home.

Whole House Fan or Economizer Control

Whole House Fan or Economizer control provides lower cost cooling using cooler outside air. Control goes beyond the timer approach by using the thermostat to automatically control the WHF using the setpoint temperature to provide improved energy efficiency. Integrated control prevents simultaneous compressor cooling and outdoor air cooling and eliminates installing and wiring other controls.

Fresh Air and ERV/HRV Control

Intelligently controls Fresh Air to meet ASHRAE 62.2 requirements for increased fresh air intake using the equipment fan and a fresh air damper. Optionally inhibits fresh air when outside temperatures are extreme. The thermostat also controls ERV/HRV units for additional comfort and energy savings.

Humidity Control

Some thermostats and wiring hubs monitor indoor humidity and control a humidifier. Dehumidification uses the DSBK terminal on some HVAC equipment to operate the fan at lower speeds during cooling to remove moisture.

Easy Upgrade to WiFi

The WiFi thermostat uses the same subbase and wiring as the non-WiFi model. The home can be upgraded to WiFi before occupancy, at the time of occupancy or the homeowner can upgrade at any time. Just unplug the non-WiFi model and plug in the new WiFi model.

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About eControls

Since 1998 eControls has designed and manufactured numerous controls, sensors, damper actuators, thermostats, humidistats and zoning panels under private label for many of the leading OEMs supplying zoning products and airflow controls.

Today, we offer a wide line of wired and wireless whole house comfort controls for residential new construction and aftermarket applications.

Family owned and operated, eControls takes great pride in the products and services we deliver, as well as the relationships we have developed with our customers. Our goal is to deliver quality, innovative products at an affordable price.

eControls

26072 Merit Circle #110
Laguna Hills, CA 92653
949-916-0945
info@econtrolsusa.com
econtrolsusa.com

The Comfort Problem

In a typical home the amount of conditioned airflow required to keep the upstairs sleeping area and the downstairs living area uniformly comfortable varies with the seasons and even during the day. This can result in large temperature variations between the upstairs and downstairs temperatures.



The Comfort365 Solution

Traditionally, zoning has been used to solve the problem. The Comfort365 solves the problem more efficiently and at about half the cost of zoning. The Comfort365 thermostat is installed in the downstairs living area and one or two temperature sensors are installed upstairs in the sleeping area. The thermostat constantly monitors the upstairs and downstairs temperatures.

Every two minutes the modulating dampers are adjusted 2% directing more airflow to the upstairs or downstairs to keep the temperatures within 2°F. Bypass is not used with this system and the equipment operates at its rated efficiency and airflow. Comfort365 dampers operate from about 60 to 100% open, never close and do not require the gaskets used in zoning dampers that can restrict airflow.

The Comfort365 will automatically maintain a uniformly comfortable home in all seasons without the use of a zoning system and at about half the cost of a zoning system.



Comfort and Energy Savings at Night

At night the Comfort365 uses the temperature sensors in the sleeping area to control heating and cooling calls. In addition, the conditioned airflow to the sleeping area is increased and the conditioned airflow to the unoccupied living area is decreased, improving comfort and energy savings.

Increasing the conditioned airflow to the sleeping area by 30% will decrease equipment operating time and energy consumption by about 30% at night or about 10% energy savings throughout the year.

Manual Airflow Control

More airflow can be directed upstairs or downstairs for special occasions or for homeowners with varying or unusual schedules.

Features

- Provides a uniformly comfortable home in all seasons.
- Eliminates installing a zoning panel, 24VAC transformer and electrical box, and discharge air temperature sensor.
- Eliminates installing a bypass damper and bypass duct.
- Saves 30% in energy at night by using the sleeping area sensors to control heating and cooling calls and directs 30% more conditioned airflow to the sleeping area at night and 30% less to the unoccupied living area.
- Use 1 or 2 temperature sensors in the sleeping area.
- Automatic or manual airflow control.
- Optional WiFi thermostat and App provides control from anywhere using the internet. Plugs into same subbase, so no additional wiring needed.
- Reduces HERS zoning testing.
- 💰 About half the cost of a zoning system.

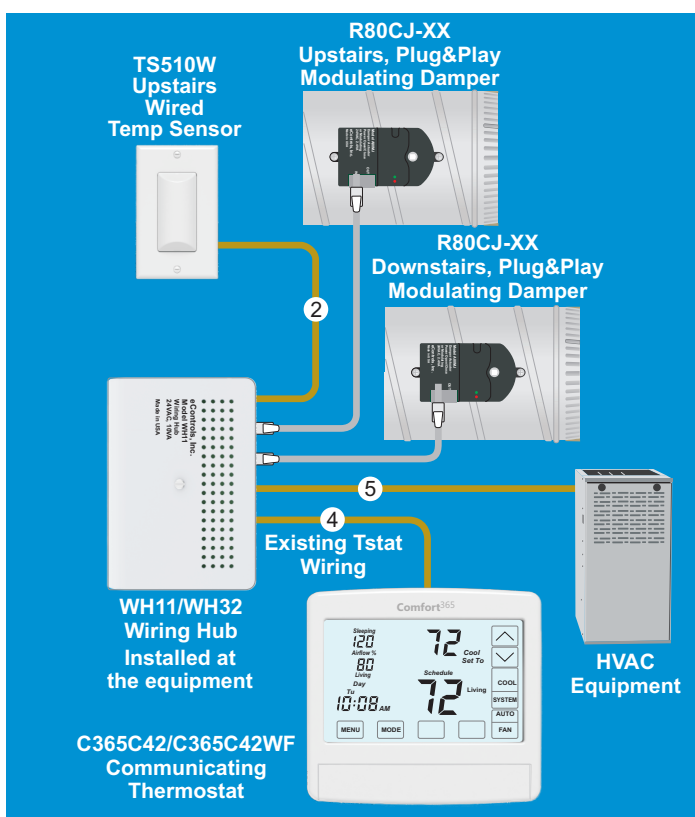
AIRFLOW CONTROL

RNC Installation

The C365C42 Communicating Thermostat and WH11 Wiring Hub solution provides a comfortable home in all seasons.

- Temperature sensors can be installed in the master bedroom and bedroom hallway.
- Plug&Play dampers reduce wiring errors.
- Only 11 wires and 2 Plug&Play cables to install compared to 25 for zoning.
- Same Thermostat, Wiring Hubs and Dampers can be used for both RNC and Replacement installations.

\$ Typical savings of 48% in materials compared to zoning.



Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS510W for single sensor installations.

Model TS520W for two-sensor installations.

Wiring Hub

Model WH11 for single stage equipment.

Model WH32 for multi-stage equipment.

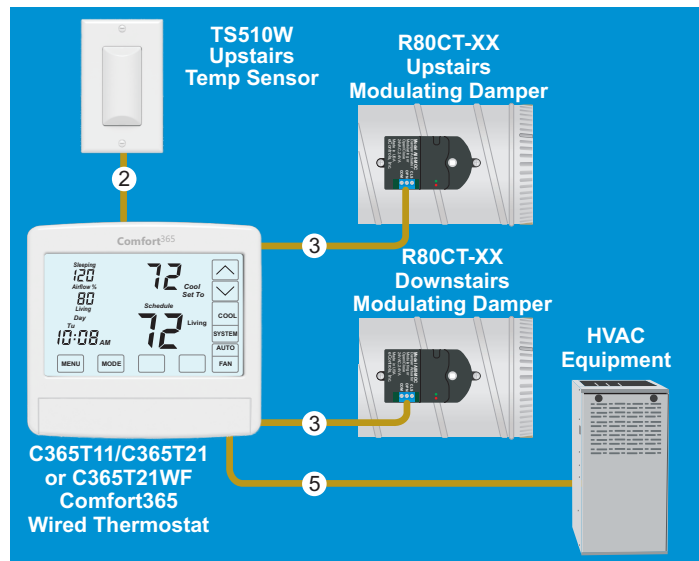
Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Alternative RNC Installation

The wired Comfort365 series using the C365T11 Thermostat is the lowest cost airflow solution for RNC.

- Eliminates installing a Wiring Hub.
 - All wiring done at rough-in.
 - Only 13 wires to install compared to 25 for zoning.
 - Installing wiring to the thermostat makes this solution difficult for Replacement installations
- \$ Typical savings of 52% in materials compared to zoning.



Comfort365 Thermostat

Model C365T11 for single stage equipment.

Model C365T21 for multi-stage equipment.

Model C365T21WF for multi-stage equipment and WiFi.

Sleeping Area Temperature Sensors

Model TS510W for single sensor installations.

Model TS520W for two-sensor installations.

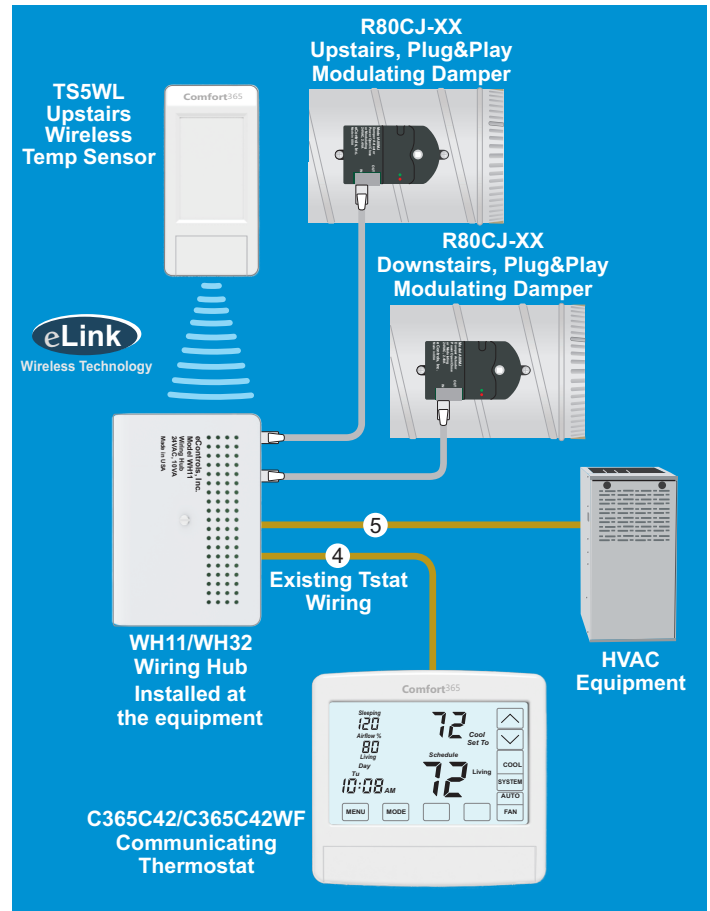
Airflow Dampers

Model R80CT-XX 3-wire modulating dampers.

Replacement Installation

The C365C42 Communicating Thermostat and WH11 Wiring Hub solution with easy-to-install wireless temperature sensors provides a comfortable home in all seasons.

- One or two wireless temperature sensors can be installed in the sleeping area.
- Temperature sensors can be installed on any wall and require no wiring. Powered by 2 AA batteries.
- Uses existing thermostat cable to connect the communicating thermostat to the Wiring Hub.
- Plug&Play dampers reduce wiring errors. 25-foot cable supplied with each damper.
- Only 9 wires and 2 Plug&Play cables to install compared to 25 wires for zoning.
- Same Thermostat, Wiring Hub and Dampers can be used for both RNC and Replacement installations.
- \$ Typical savings of 46% in materials compared to a wireless zoning installation.



Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS5WL wireless sensor for single or two-sensor installations.

Wiring Hub

Model WH11 for single stage equipment.
Model WH32 for multi-stage equipment.

eLink Plug-in Radio Module

Model ELR1 Plug-In Radio Module plugs into Wiring Hub.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

FRESH AIR CONTROL

Comfort365 with Fresh Air Control

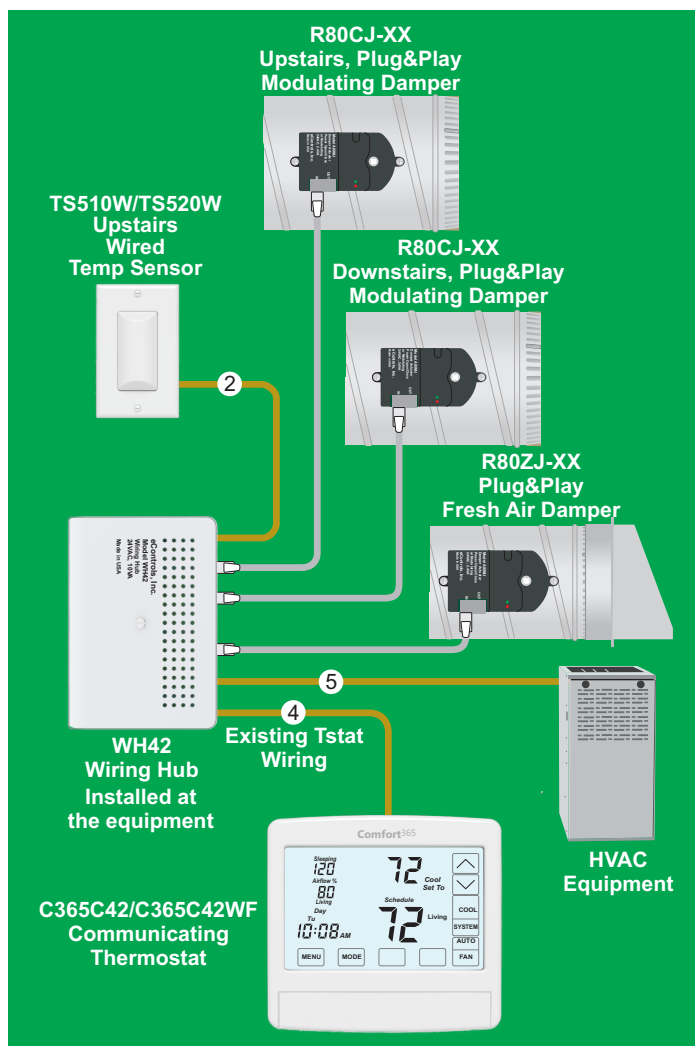
With ASHRAE fresh air intake requirements changing from a .01 to a .03 factor, new approaches may be required to meet ASHRAE 62.2. Fresh Air control is provided in the WH42 Wiring Hub to control a damper to draw fresh air into the home. The minutes of fresh air intake is based on the ASHRAE formula, the size of the fresh air damper and the equipment intake capability.

The Comfort365 attempts to fulfill the fresh air intake during heating and cooling calls to minimize discomfort. If the minutes of fresh air cannot be satisfied during heating and cooling calls, the fresh air damper is opened and the equipment fan is activated. High and low outdoor temperature limits can be set to inhibit fresh air operation in severe weather.

- Meets ASHRAE 62.2.
- Controls one or more fresh air dampers and the HVAC equipment fan.
- Intelligent fresh air control tries to fulfill fresh air requirements during heating and cooling calls.
- Optionally inhibit fresh air operation in severe weather.
- All options are digitally set at the thermostat.
- Optional WiFi thermostat and App provides control from anywhere using the internet.
- \$ Eliminates buying, installing and wiring a separate fresh air controller.

RNC Installations

The C365C42 Thermostat and WH42 Wiring Hub provides Fresh Air control to meet ASHRAE 62.2 using the equipment fan.



Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS510W for single sensor installations.
Model TS520W for two-sensor installations.

Wiring Hub

Model WH42 for multi-stage equipment.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Fresh Air Damper

Model R80ZJ-XX Plug&Play, sealed modulating damper.

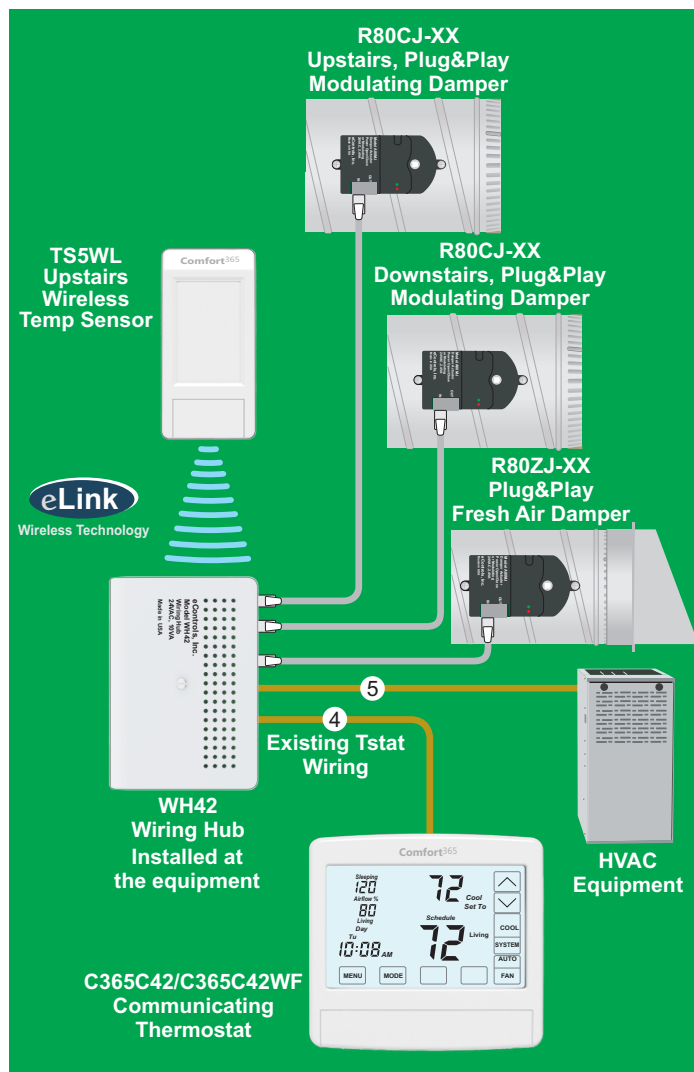
FRESH AIR CONTROL

Replacement Installations

The C365C42 Thermostat and WH42 Wiring Hub provides Fresh Air control to meet ASHRAE 62.2 using the equipment fan. Wireless temperature sensors in the sleeping area make installation quick and clean.

Features

- Wireless temperature sensors in the sleeping area simplify Replacement installations.
- Meets ASHRAE 62.2.
- Controls one or more fresh air dampers and the HVAC equipment fan.
- Intelligent fresh air control tries to fulfill fresh air requirements during heating and cooling calls.
- Optionally inhibit fresh air operation in severe weather.
- All options are digitally set at the thermostat.
- Optional WiFi thermostat and App provides control from anywhere using the internet.
- \$ Eliminates buying, installing and wiring a separate fresh air controller.



Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Wireless Sleeping Area Temperature Sensors

Model TS5WL for single or two-sensor installations.

Wiring Hub

Model WH42 for multi-stage equipment.

eLink Plug-in Radio Module

Model ELR1 Plug-In Radio Module plugs into Wiring Hub.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Fresh Air Damper

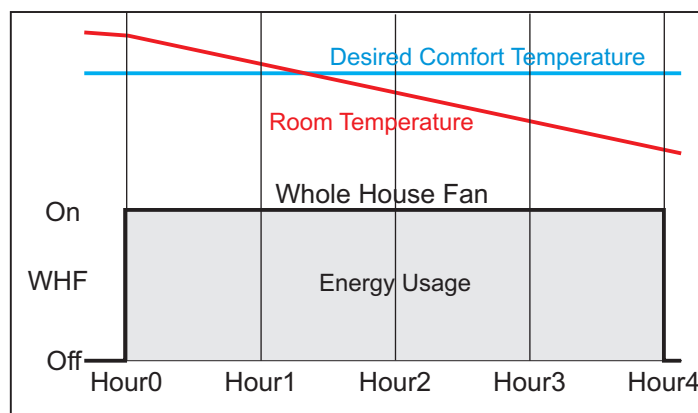
Model R80ZJ-XX Plug&Play sealed modulating damper.

WHOLE HOUSE FAN CONTROL

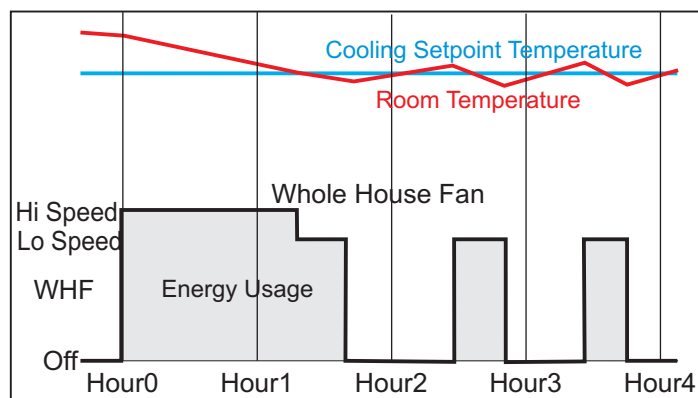
Comfort365 with WHF Control

Whole house fans are being used more in RNC and AOR installations because they provide an energy efficient solution to cooling using outside air and improve the HERS rating of a home. Most whole house fans are controlled by a timer that operates the fan for a preset number of hours regardless of whether cooling is still required.

Integrated control of the whole house fan using temperature can improve energy efficiency by operating the fan only when the outdoor temperature is low enough to provide cooling and the space temperature needs to be lowered. Operation of two-speed fans is improved by staging the fan speeds and only using high speed when it is required. The graphs below show how energy efficiency and comfort are improved using temperature control.



Whole House Fan Operation Using Timer



Whole House Fan Operation Using Temperature and Speed Control

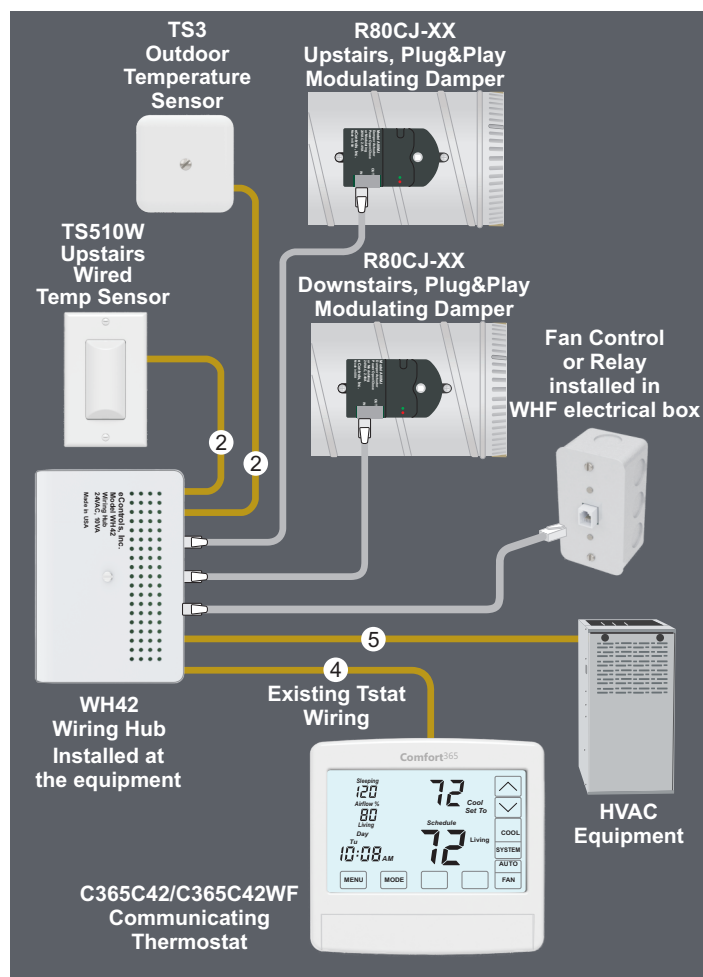
Although less energy efficient, a 1 to 8-hour built-in timer can be used to control the whole house fan.

- Temperature control for improved energy efficiency and comfort.
 - Temperature control monitors outdoor, space and cooling setpoint temperatures for efficient control.
 - Controls single or two-speed PSC fans or variable speed ECM fans using PWM control.
 - Integrated control prevents conflicting use of WHF cooling and compressor cooling.
 - Built-in 1 to 8-hour Timer can be used to control the WHF.
 - Thermostat cost is about the same as using a builder model thermostat and wall timer.
 - Optional WiFi thermostat and App provides control from anywhere using the internet.
- \$ Eliminates the cost of installing and wiring a timer.

WHOLE HOUSE FAN CONTROL

RNC Installation

The WH42 Wiring Hub and C365C42 thermostat provides whole house fan control using temperature or a built-in 1 to 8-hour timer.



Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS510W for single sensor installations.

Model TS520W for two-sensor installations.

Wiring Hub

Model WH42 for multi-stage equipment.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Fan Control

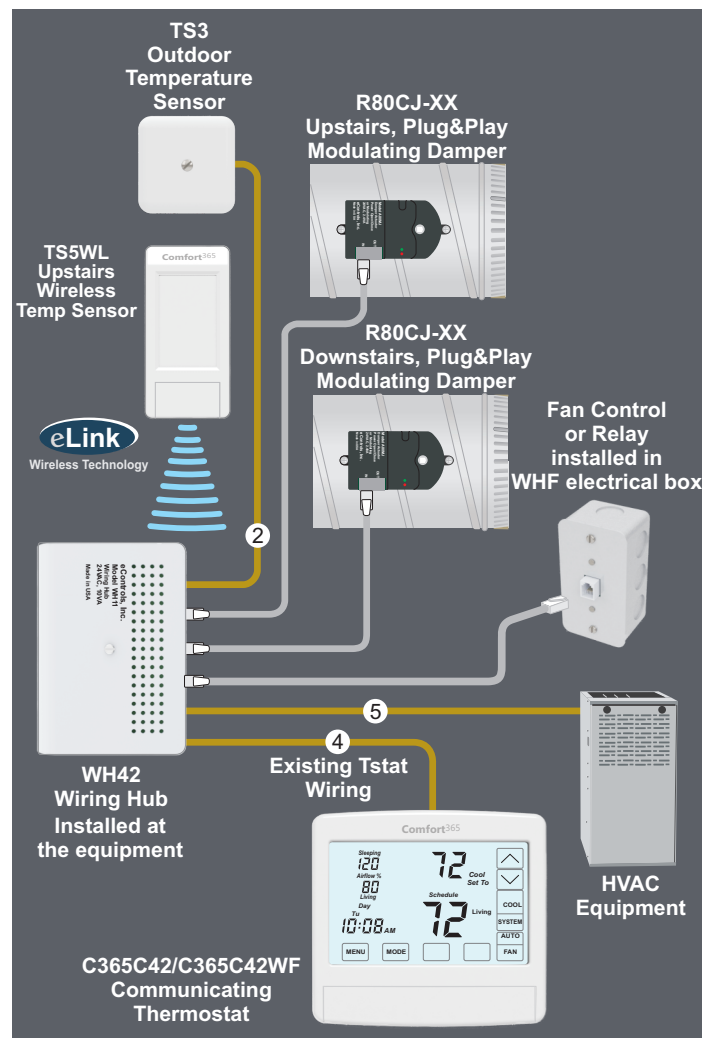
Model FC2J for 1 or 2-speed PSC or ECM fans or variable speed control ECM fans using PWM.

Optional Outdoor Temperature Sensor

Model TS3.

Replacement Installation

The WH42 Wiring Hub and C365C42 thermostat provides whole house fan control using temperature or a built-in 1 to 8-hour timer. Wireless temperature sensors in the sleeping area simplifies installation.



Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS5WL wireless sensor for 1 or 2 sensor installations.

Wiring Hub

Model WH42 for multi-stage equipment.

eLink Plug-in Radio Module

Model ELR1 Plug-In Radio Module plugs into Wiring Hub.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Fan Control

Model FC2J for 1 or 2-speed PSC or ECM fans or variable speed control ECM fans using PWM.

Optional Outdoor Temperature Sensor

Model TS3.

ECONOMIZER CONTROL

Comfort365 with Economizer Control

An economizer is an alternative to a whole house fan that is easier to install and less expensive. The economizer provides cooling using the outdoor air rather than compressor cooling.

A damper is installed on the supply plenum. In economizer operation, the equipment fan draws air in through open windows. The air is returned to the equipment and exhausted into the attic. Another economizer design uses 3 dampers to control outdoor, return and discharge airflow. This design eliminates having to open windows when cooling with outdoor air and the security and noise problem with open windows.

- Uses cool outdoor air for cooling to save energy.
- Control by temperature for improved energy efficiency or by a built-in 1 to 8-hour Timer.
- Simpler to install than a whole house fan.
- Eliminates installing a WHF and wall timer.
- \$ About 1/3 the cost of installing a whole house fan.

RNC Installation

The WH42 Wiring Hub and C365C42 thermostat provides economizer control using temperature or a built-in 1 to 8-hour timer.

Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS510W for single sensor installations.

Model TS520W for two-sensor installations.

Wiring Hub

Model WH42 for multi-stage equipment.

Airflow Dampers

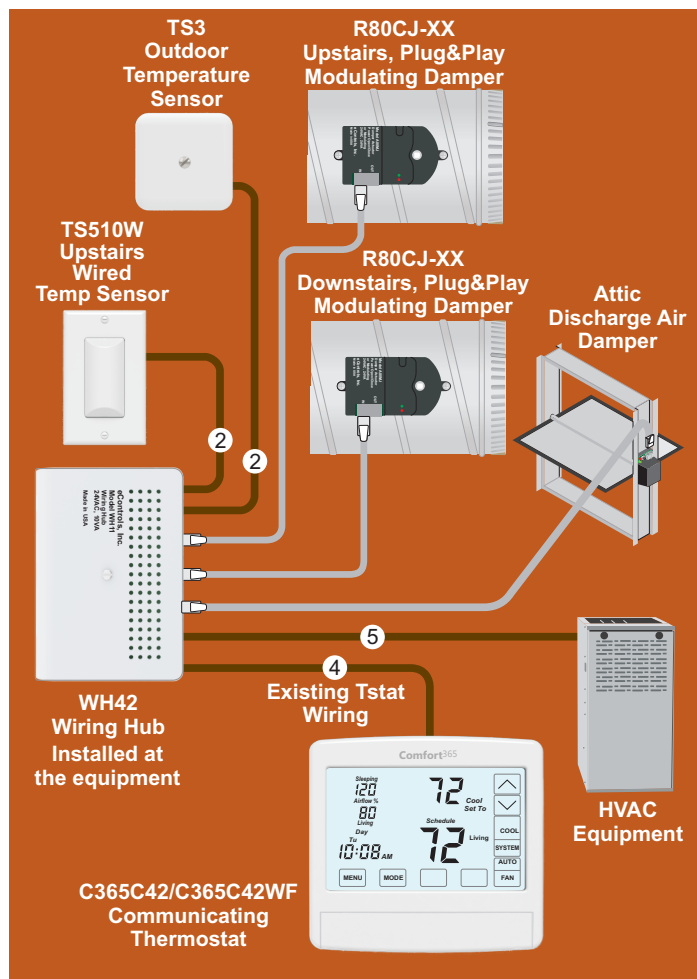
Model R80CJ-XX Plug&Play modulating dampers.

Economizer Damper

Model PD250ZJ-WWHH where WW-width and HH-height.

Optional Outdoor Temperature Sensor

Model TS3.



Replacement Installation

The WH42 Wiring Hub and C365C42 thermostat provides economizer control using temperature or a built-in 1 to 8-hour timer (not illustrated).

Comfort365 Thermostat

Model C365C42 or C365C42WF WiFi thermostat.

Wireless Sleeping Area Temperature Sensors

Model TS5WL for single or two-sensor installations.

Wiring Hub

Model WH42 for multi-stage equipment.

eLink Plug-in Radio Module

Model ELR1 Plug-In Radio Module plugs into Wiring Hub.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Economizer Damper

Model PD250ZJ-WWHH where WW-width and HH-height.

Optional Outdoor Temperature Sensor

Model TS3.

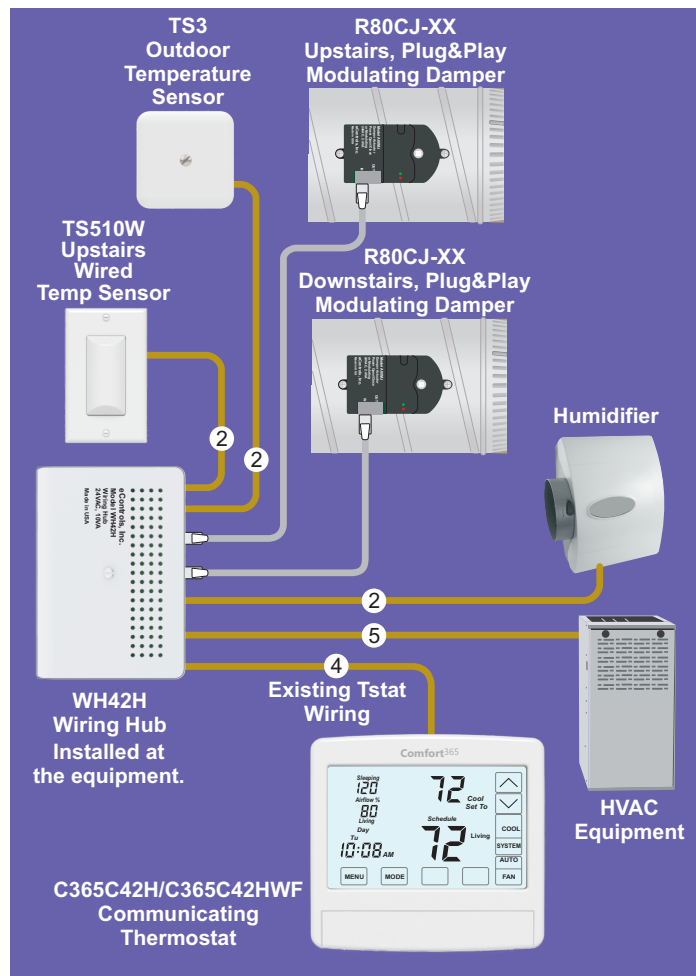
HUMIDIFICATION CONTROL

Comfort365 with Humidity Control

The C365C42H or C365C42HWF Thermostat and WH42H Wiring Hub controls a humidifier using a relay with dry contacts and dehumidification using the DSBK terminal that runs the equipment fan at lower speed during cooling to extract more moisture. The RH setpoint is set from the Comfort365 thermostat.

- Controls humidity during heating calls (and optionally during cooling calls) using a Humidifier.
- Controls dehumidification during cooling calls using the DSBK terminal connected to the equipment DS, BK or HUM terminal.

RNC Installation



Comfort365 Thermostat

Model C365C42H or C365C42HWF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS510W for single sensor installations.
Model TS520W for two-sensor installations.

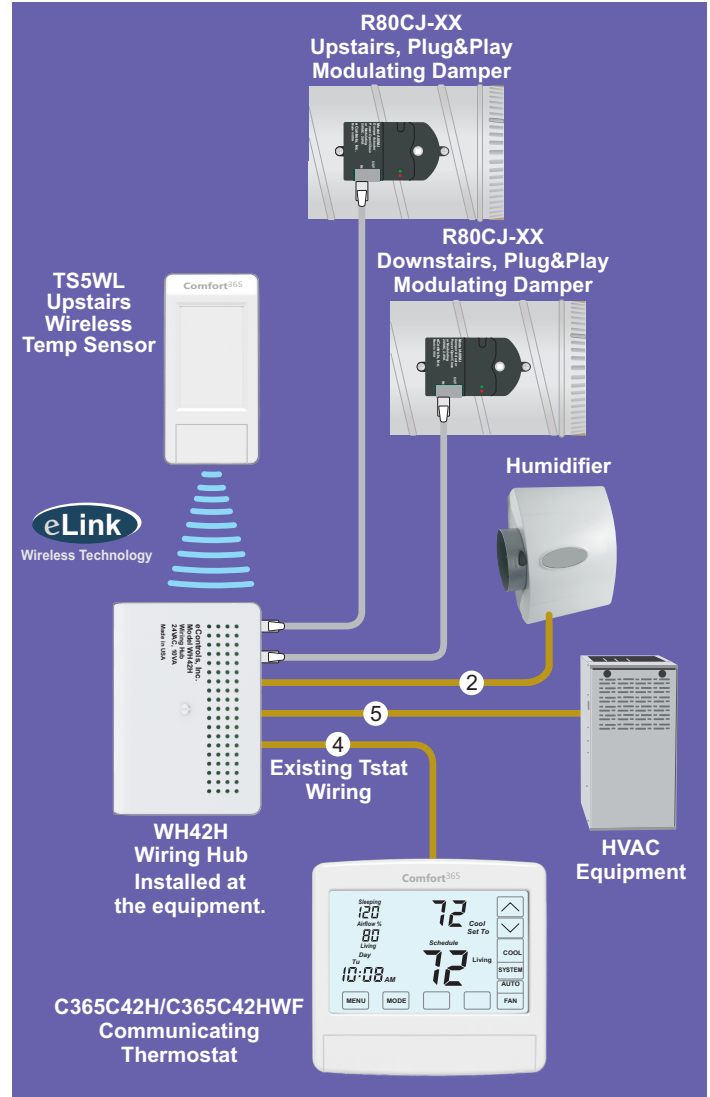
Wiring Hub

Model WH42H for multi-stage equipment.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Replacement Installation



Comfort365 Thermostat

Model C365C42H or C365C42HWF WiFi thermostat.

Sleeping Area Temperature Sensors

Model TS5WL wireless sensor for single or two-sensor installations.

Wiring Hub

Model WH42H for multi-stage equipment.

eLink Plug-in Radio Module

Model ELR1 Plug-In Radio Module plugs into Wiring Hub.

Airflow Dampers

Model R80CJ-XX Plug&Play modulating dampers.

Comfort365 Thermostats & Wiring Hub Selection Guide

Thermostat and Wiring Hub Model #	RNC	AOR	HVAC Equipment	Airflow Control	Fresh Air Control	ERV /HRV Control	Whole House Fan Control	Economizer Control	Humidity Control	Direct Damper Control	WiFi Option
C365T11	●		GE 1H/1C	●							
C365T21	●		GE or HP 2H/1C or 1H/2C	●							
C365T21WF	●		GE or HP 2H/1C or 1H/2C	●							●
C365C42 / WH11	●	●	GE 1H/1C	●							
C365C42WF / WH11	●	●	GE 1H/1C	●							●
C365C42 / WH32	●	●	GE, HP or DFHP 3H/2C	●							
C365C42WF / WH32	●	●	GE, HP or DFHP 3H/2C	●							●
C365C42 / WH42	●	●	GE, HP or DFHP 3H/2C	●	●	●	●	●			
C365C42WF / WH42	●	●	GE, HP or DFHP 3H/2C	●	●	●	●	●			●
C365C42H / WH42H	●	●	GE, HP or DFHP 3H/2C	●	●		●	●	●		
C365C42HWF / WH42H	●	●	GE, HP or DFHP 3H/2C	●	●		●	●	●		●

Airflow Control can be turned off in these thermostats to provide a low-cost, touch, programmable thermostat for non-airflow installations in RNC and offers uniformity in thermostats offered by the builder.

Integrated Control Thermostats

T511FA	●	●	GE 1H/1C		●						
T511FAWF	●	●	GE 1H/1C		●						●
T511FC	●	●	GE 1H/1C				●	●			
T511FCWF	●	●	GE 1H/1C				●	●			●
T500D	●		No							●	
T500DWL		●	No							●	

See Data Sheets or website for more details on these products.

5-Year Warranty

All products have a 5-year warranty, limited to the repair or replacement of the product due to defective material or workmanship.

eControls

26072 Merit Circle #110, Laguna Hills, CA 92653
949-916-0945, www.eControlsUSA.com