eControls

Model ZCDWL
2-Zone Wireless Comfort Control
Homeowner and Installation Manual

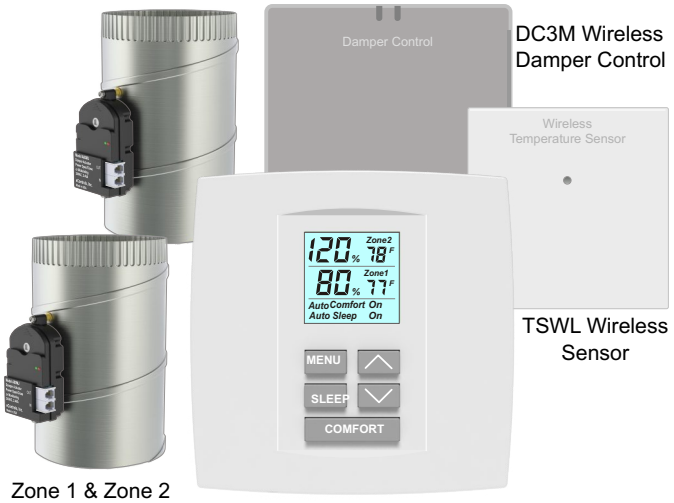
ZCDWL Ver 000 Jan 2025

The ZCDWL 2-Zone Wireless Comfort Control works with your existing thermostat to solve the comfort problem found in two-story homes, where the upstairs is too warm during the summer and the downstairs is too cold during the winter.

While the thermostat controls the temperature in the home, the ZCDWL controls the airflow to the zones by monitoring the equipment for heating and cooling calls as well as the temperatures in the upstairs and downstairs zones. If the temperatures differ by 2 degrees or more, the ZCDWL automatically directs more heating or cooling to the zone that needs it to provide whole house comfort. Or, you can manually direct more heating or cooling to the upstairs or downstairs zone as desired.

The ZCDWL includes a Nighttime Comfort option, Auto Sleep, that automatically directs more heating or cooling to the upstairs sleeping zone and less to the unoccupied downstairs zone and is ideal for homes where all of the bedrooms are located upstairs.

Look for this symbol throughout the manual to see how the ZCDWL can save energy as well as reduce wasted energy.



DC3M Wireless Damper Control

TSWL Wireless Sensor

Zone 1 & Zone 2 Dampers

ZCDWL 2-Zone Wireless Comfort Control

HOMEOWNER

Things to Know

LCD BACKLIGHT

For easy viewing at any time, briefly press the Comfort key to turn on the LCD backlight.

COMFORT CONTROL SELECTION

Automatic Whole Home Comfort - Factory Default

Automatically adjusts the amount of heating or cooling directed to the upstairs or downstairs zone to keep the zones within 2 degrees of each other.

Upstairs Comfort Focus

More heating or cooling is directed upstairs and less to the unoccupied downstairs.

Downstairs Comfort Focus

More heating or cooling is directed downstairs and less to the unoccupied upstairs.

NIGHTTIME COMFORT OPTION - Factory Set to Off

Auto Sleep automatically directs 30% more heating or cooling to the upstairs sleeping zone each night and 30% less to the unoccupied downstairs zone. Saves 30% in energy at night.

Wireless Communication

The TSWL Temperature Sensor and the ZCDWL Control are battery powered and communicate every 2 minutes to conserve battery power. If a key is pressed on the ZCDWL it sends any changes when the backlight goes off.

Saving Changes

Changes are saved and communicated when the backlight turns off. Trying to make too many changes at once may not get the result you're looking for. Be sure to allow the ZCDWL to save your change by observing the backlight turning off.

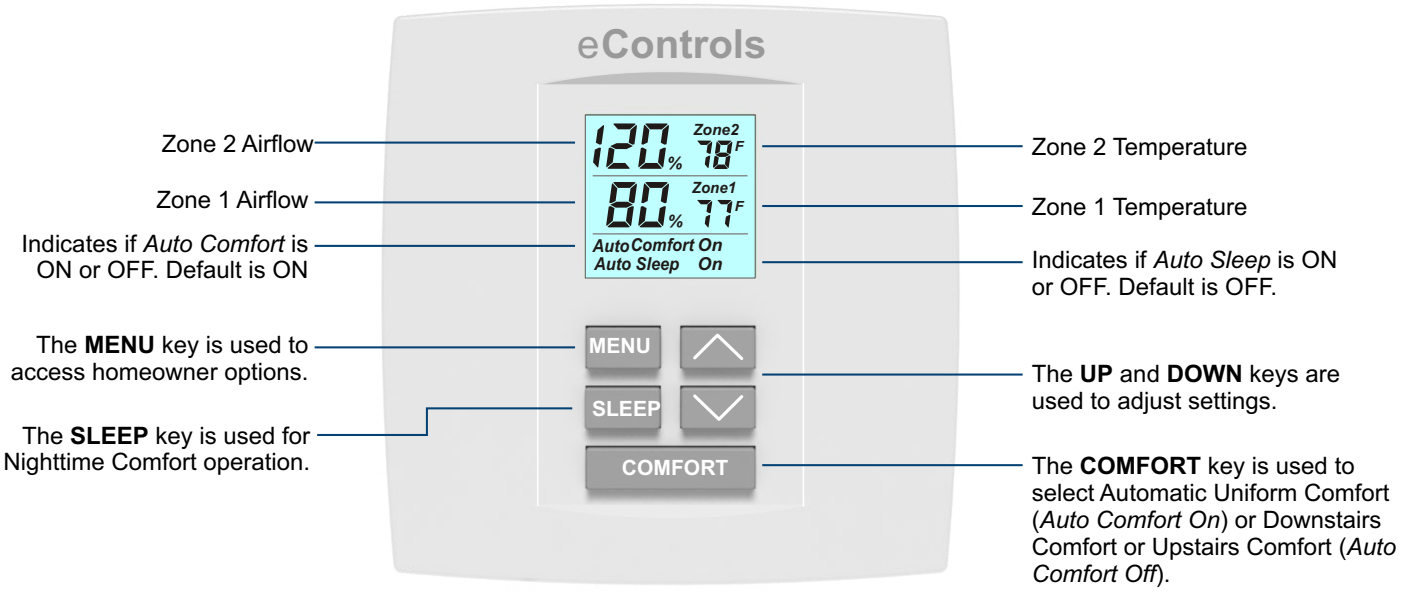
Starter Battery Replacement

The ZCDWL Control and TSWL Sensor are supplied with alkaline starter batteries. When it's time to change batteries, we highly recommend replacing the batteries with AAA lithium batteries for longer life.

HOMEOWNER

Understanding Your 2-Zone Comfort Control

The ZCDWL 2-Zone Wireless Control is typically installed in the downstairs zone (living space), a wireless temperature sensor is installed in the upstairs zone (sleeping space), a wireless damper control is installed near the equipment and two modulating dampers are installed in the duct work to control the distribution of heating and cooling to the downstairs and upstairs zones.



Comfort Control Options

The ZCDWL includes three different comfort options - **Automatic Whole Home Comfort** (factory default), **Downstairs Comfort Focus** and **Upstairs Comfort Focus** that are designed to maximize your comfort and energy savings.

Press and **Hold** the **COMFORT** key to cycle through the comfort options.

Automatic Whole Home Comfort

In Auto Comfort, the ZCDWL monitors the upstairs and downstairs temperatures during heating and cooling calls and automatically directs more heating or cooling to the zone that needs it every 2 minutes to keep the temperatures within 2 degrees to provide a uniformly comfortable home.

When *Auto Comfort On* is displayed, the UP and DOWN keys are disabled.

Reduces the wasted energy caused by overcooling your downstairs zone in the summer to make your upstairs zone more comfortable or overheating your upstairs zone in the winter to make your downstairs zone more comfortable.

Downstairs Comfort Focus

In Downstairs Comfort, the ZCDWL directs more heating or cooling to the downstairs zone and less to the upstairs zone, and is ideal for homes where the upstairs is rarely used.

Airflow can be adjusted at any time:
Press and **Hold** the **UP** or **DOWN** key.

Reduces the wasted energy used to heat or cool the unoccupied upstairs zone and saves energy by satisfying the heating and cooling calls sooner.

Upstairs Comfort Focus

In Upstairs Comfort, the ZCDWL directs more heating or cooling to the upstairs zone and less to the downstairs zone, and is ideal for homes with an upstairs home office or theater room.

Airflow can be adjusted at any time:
Press and **Hold** the **UP** or **DOWN** key.

Reduces the wasted energy used to heat or cool the unoccupied downstairs zone and saves energy by enabling you to adjust your heating and cooling set to temperatures to more energy saving settings without sacrificing comfort.

Nighttime Comfort Option - Auto Sleep

The nighttime comfort option, Auto Sleep, saves energy and improves comfort at night and is ideal for homes where all of the bedrooms are located upstairs. Each night, the ZCDWL automatically directs 30% more heating or cooling to the upstairs zone and 30% less to the unoccupied downstairs zone. In the morning, the ZCDWL returns to the Comfort option previously selected.

Default settings for Auto Sleep:

- Defaults to Off. Access the Menu options to turn the option On.
- 8 Hour Timer Operation - Changed by accessing the Menu options.
- 130% Airflow to Zone2 - Can be changed anytime during Auto Sleep operation or by accessing the Menu options.

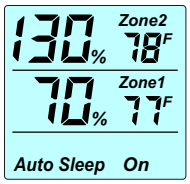
Auto Sleep reduces the wasted energy used to heat or cool the unoccupied downstairs zone at night and saves energy by enabling you to adjust your heating and cooling set to temperatures to more energy saving settings without sacrificing comfort.

Set Nightly Start Time (First Operation)

For the first operation only, the nightly start time needs to be set.

At your desired nightly start time:

- **Press** and **Hold** the **SLEEP** key until the Auto Sleep airflow settings are displayed. Each night at this time, the ZCDWL will automatically switch to Nighttime Comfort operation.

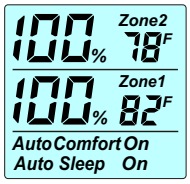


If desired, adjust the airflow:

- **Press** and **Hold** the **UP** or **DOWN** key. The setting is saved and becomes your default airflow at night.

END OF AUTO SLEEP OPERATION

In the morning when the Auto Sleep timer ends, the ZCDWL automatically returns to the previous Comfort selection.



To end Auto Sleep at any time:

- **Press** and **Hold** the **COMFORT** key to return to the previous Comfort selection.

If Auto Comfort was previously selected, the airflow returns to 100% in both Zone1 and Zone2, but within 2 minutes an appropriate adjustment to airflow will automatically be made.

Quick Tips For Auto Sleep Operation

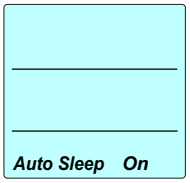
- To set a new nightly start time, simply **Press** the **SLEEP** key at the desired start time.
- To end Auto Sleep operation and return to the previous Comfort selection, **Press** and **Hold** the **COMFORT** key.
- Following a power outage, the nightly start time for Auto Sleep needs to be reset. Simply **Press** the **SLEEP** key at the desired start time.
- To turn the Auto Sleep option Off, **Press** the **MENU** key to display AutoSleep then **Press** the **DOWN** key to display AutoSleep Off.

MENU OPTIONS

OPTION - Auto Sleep On or Off

This option turns the Auto Sleep option ON or OFF.

- **Press** the **MENU** key until *Auto Sleep Off* is displayed.
- **Press** the **UP** key to turn Auto Sleep ON or the **DOWN** key to turn Auto Sleep OFF. The setting is saved when the backlight turns off.

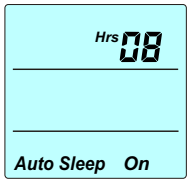


OPTION - Auto Sleep Timer Hours

Only displayed if Auto Sleep is set to On.

This option enables you to adjust the timer hours for Auto Sleep operation.

- **Press** the **MENU** key until *Auto Sleep On Hrs 08* is displayed.
- **Press** and **Hold** the **UP** or **DOWN** key to adjust the timer hours for Auto Sleep operation. The setting is saved when the backlight turns off.

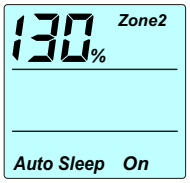


OPTION - Auto Sleep Airflow Setting

Only displayed if Auto Sleep is set to On.

This option enables you to adjust the amount of airflow directed to the upstairs sleeping zone during Auto Sleep operation.

- **Press** the **MENU** key until *Auto Sleep On 130% Zone2* is displayed.
- **Press** and **Hold** the **UP** or **DOWN** key to adjust the amount of airflow directed to Zone 2 during Auto Sleep operation. The setting is saved when the backlight turns off.



OPTION - Calibrate Zone 1 Temperature

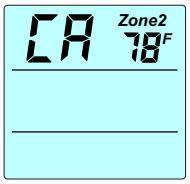
This option enables you to calibrate the Zone 1 temperature to a temperature that you feel is more correct or to align with the temperature displayed on your thermostat.

- **Press** the **MENU** key until *CA Zone1* is displayed.
- **Press** and **Hold** the **UP** or **DOWN** key to adjust the temperature. The setting is saved when the backlight turns off.

OPTION - Calibrate Zone 2 Temperature

This option enables you to calibrate the Zone 2 temperature to a temperature that you feel is more correct or to align with your thermostat's remote sensor (if installed).

- **Press** the **MENU** key until *CA Zone2* is displayed.
- **Press** and **Hold** the **UP** or **DOWN** key to adjust the temperature. The setting is saved when the backlight turns off.



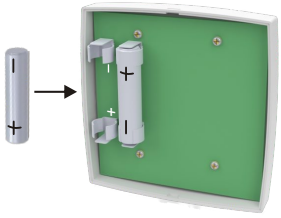
Changing Batteries in ZCDWL Control

Expected battery life is about 1 to 2 year when using alkaline batteries and about 2 to 4 years when using lithium batteries. Lithium batteries are recommended for longer battery life and better performance.

To test the batteries momentariy press the COMFORT key. The batteries should be changed if the backlight does not turn on when the key is pressed.

To Change the ZCDWL Batteries

Remove the ZCDWL from the subbase by rotating the front as shown.



Install 2 AAA batteries making sure the polarity is correct.

Re-attach the ZCDWL to the subbase and the LCD display should turn on. It may turn a couple of minutes before the temperatures update.

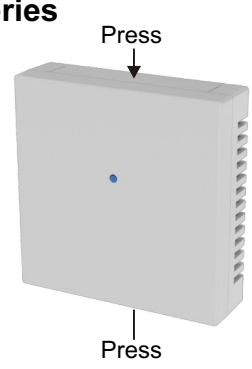
Change Batteries in TSWL Sensor

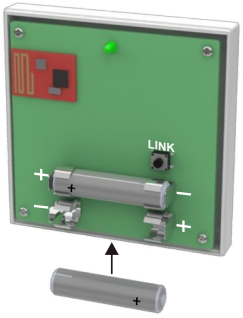
Expected battery life is about 3 years when using alkaline batteries and about 5 years when using lithium batteries. Lithium batteries are recommended for longer battery life and better performance.

If the Upstairs Zone2 temperature is continuously displaying “- -”, the batteries in the TSWL temperature sensor should be changed.

To Change the TSWL Batteries

Remove the cover of the TSWL by pressing in the areas indicated to release the cover.





Remove the old batteries and replace them with new AAA batteries. Use lithium batteries for longer battery life. Be sure the battery polarity is correct.

Smart Thermostats w/ Remote Sensor

The ZCDWL 2-Zone Wireless Comfort Control optimizes the comfort features in smart thermostats with remote sensors while adding valuable energy savings.

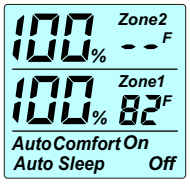
At night, use the thermostat’s remote sensor located upstairs in the bedroom space to control the heating and cooling calls. The Nighttime Comfort option directs more heating and cooling upstairs and satisfies the heating or cooling call sooner, saving energy and optimizing comfort.

When Upstairs Comfort is selected, use the thermostat’s remote sensor located upstairs to control the heating and cooling calls. More heating and cooling is directed upstairs, satisfying the heating or cooling call sooner, saving energy and optimizing comfort.

Troubleshooting

Sensor Error

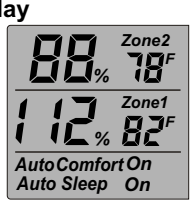
When the TSWL Wireless Temperature Sensor fails to send the upstairs temperature, the ZCDWL displays the temperature as dashes. Replace the batteries in the TSWL. If the problem persists after changing the sensor batteries, ensure that the DC3M Damper Control in the attic is powered.

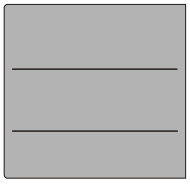


Until the error is corrected. the ZCDWL will open both dampers and disable Automatic Uniform Comfort. Upstairs Comfort and Downstairs Comfort will function normally.

No Backlight or Blank Display

If the backlight on the ZCDWL does not come on when a key is pressed or the display is blank, the batteries should be changed.





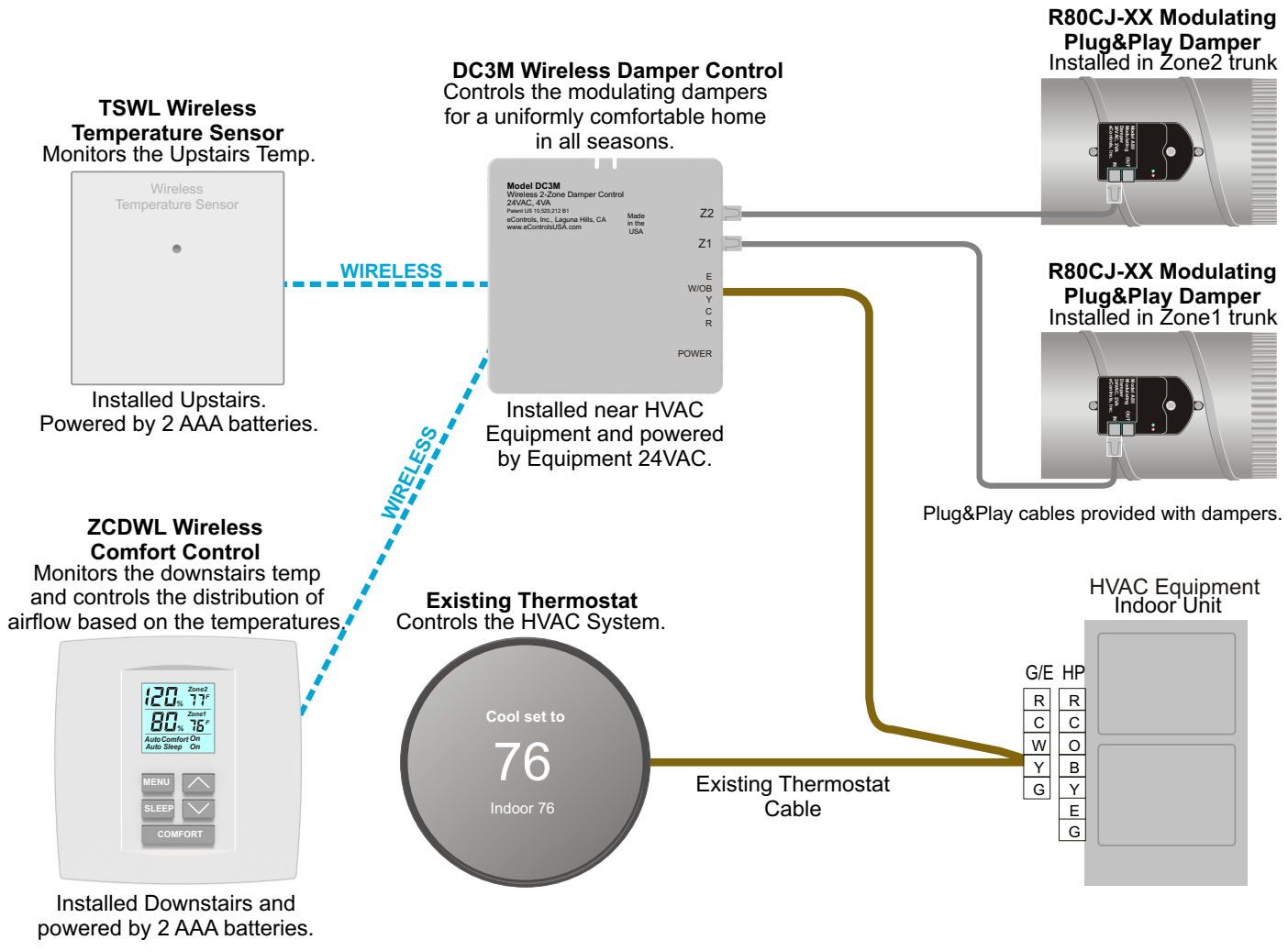
INSTALLATION

CAUTIONS

- Before installing the ZCDWL system, turn off all power to the HVAC system.
- Read and follow all instructions carefully.
- Read entire manual before installing products.
- Follow all local electrical codes during installation. All wiring must conform to local and national electrical codes.
- Use cautions when mounting components to surfaces that may have concealed wiring beneath the surface.
- When servicing products or accessing products, turn off all power to these items.

The DC3M can be powered by the equipment's 24VAC or by a separate 24VAC, 20 or 40VA Class 2 transformer, wall plug-in or hardwired type. If using a separate transformer, the jumpers JP1 and JP2 must be cut. See Page 7. Failure to do so can damage the DC3M and equipment.

Wiring Diagram



INSTALLATION

STEP 1 Install Dampers

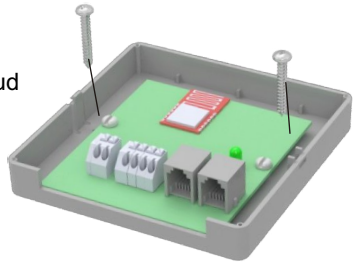
In a typical installation, Zone 1 is the downstairs living zone and Zone 2 is the upstairs sleeping zone.

Install an R80CJ or RT80CJ damper in the trunk supplying air to Zone 1 and install an R80CJ or RT80CJ damper in the trunk supplying air to Zone 2. If multiple dampers are required to define a zone, they can be daisy chained and wired as shown in Step 3. Each damper uses 2VA of power.

STEP 2 Install DC3M Damper Control

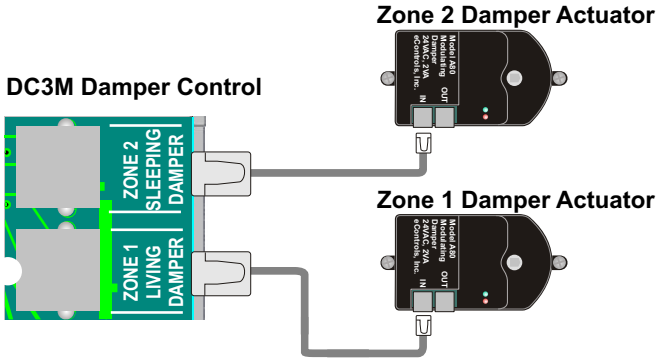
Remove the DC3M cover by pressing on the tabs on the sides of the case as shown.

Mount DC3M near the HVAC equipment using the hardware provided. Locate it on a wall, stud or roof truss. Do not install on a metal surface or near 120VAC lines as this may interfere with wireless communication.

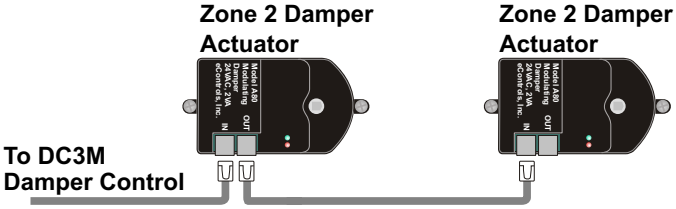


STEP 3 Connect Dampers to DC3M

Plug one end of the cable provided with the damper into the “IN” connector on the Zone 1 damper actuator then plug the other end into the Zone 1 connector on the DC3M Damper Control. Using the other cable, plug one end of the cable into the “IN” connector on the Zone 2 damper actuator then plug the other end into the Zone 2 connector on the DC3M Damper Control.



If more than one damper is required to define a zone, additional dampers can be connected by plugging one end of cable into the “OUT” connector on the first damper actuator and plugging the other end into the “IN” connector on the second damper actuator.

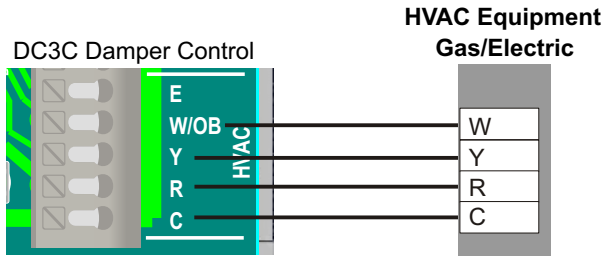


STEP 4 Wire DC3M to Equipment

Important! Be sure the thermostat is set to Off so there are no heating or cooling calls.

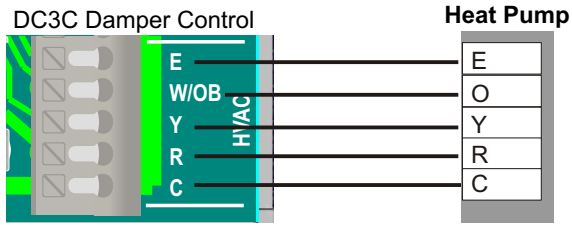
Gas/Electric Equipment

Use 4-conductor, 18 or 20 gage thermostat cable to connect the DC3M Control terminals C, R, Y and W/OB to the equipment terminals C, R, Y and W.



Heat Pump Equipment

Use 5-conductor, 18 or 20 gage thermostat cable to connect the DC3M Control terminals C, R, Y, W/OB and E to the equipment terminals C, R, Y, O or B and E.

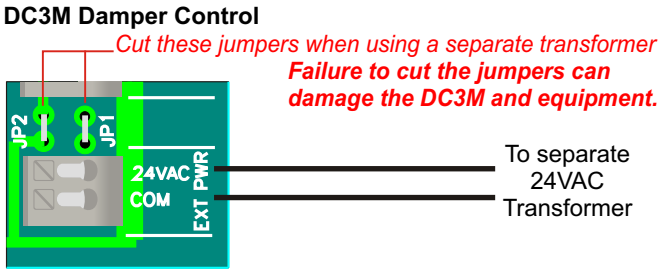


Optionally Use Separate 24VAC Transformer

The DC3M can be powered by the equipment’s 24VAC or by a separate 24VAC, 40VA Class 2 transformer.

Use 2-conductor, 18 or 20 gage thermostat cable to connect the DC3M Damper Control terminals 24VAC and COM to the connections on the transformer.

When wiring to a transformer, cut jumpers JP1 and JP2 on the DC3M. Failure to cut the jumpers can damage the DC3M and equipment.



INSTALLATION

STEP 5 Power DC3M and Dampers

Power the equipment and the DC3M Damper Control. Dampers should all be powered.

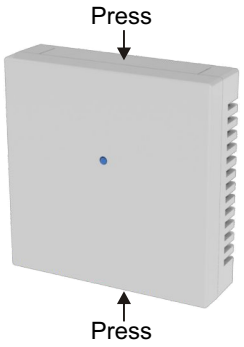
Both dampers should display a Green LED indicating they are fully open.

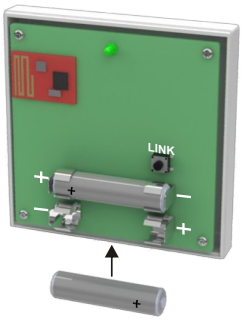
DC3M Damper Control initially displays a red LED and will switch to green once the wireless communication begins.

STEP 6 Install and Power TSWL Sensor

The TSWL Sensor is typically located on an upstairs wall (Zone 2), about 5 feet off the floor, in a space that will best detect the temperature for the upstairs zone.

Remove the cover of the TSWL by pressing in the areas indicated to release the cover.



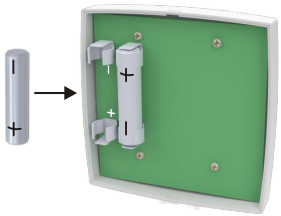


Install the batteries being sure the battery polarity is correct. The TSWL is pre-linked and will blink green within 15 seconds indicating it is communicating with the DC3M.

STEP 7 Install and Power ZCDWL Control

The ZCDWL 2-Zone Control is typically located on a downstairs wall (Zone 1), about 5 feet off the floor, in a space that will best detect the temperature for the downstairs zone.

Remove the ZCDWL from the subbase by rotating the front as shown.



Install 2 AAA batteries making sure the polarity is correct.

Reattach the ZCDWL to the subbase and the LCD display will turn on.

The LCD display will be on and the Zone2 temperature will be displayed as "--". Once the ZCDWL starts communicating (up to 2 minutes) the Zone2 temperature will be displayed.

Step 8 Set Installer Options

Installer Options ONLY need to be changed if the installation is different than the default settings shown below.

Option	Default	Range
Equipment Type	Gas/Electric	Gas/Electric or Heat Pump
Heat Pump Reversing Valve	Type O	Type O or Type B
ZCDWL Location	Zone 1 Downstairs	Zone 1 Downstairs or Zone 2 Upstairs
Linking Option	Off	Off or On

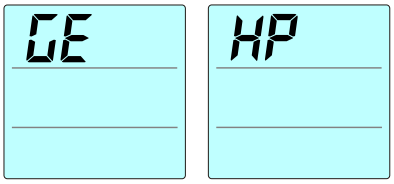
Press the **MENU** and **COMFORT** keys at the same time to display the first option, GE.

OPTION 1 - Equipment Type

Defaults to GE (Gas/Electric).

Press the **DOWN** key to select HP (Heat Pump) or **Press** the **UP** key to select GE (Gas/Electric).

Press the **MENU** key to go to the next option.

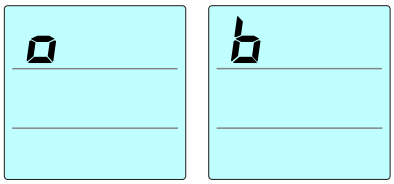


OPTION 2 - Heat Pump Reversing Valve Type

Only displayed if HP was selected. Defaults to Type O.

Press the **UP** key to select B type or **Press** the **DOWN** key to select an O type reversing valve.

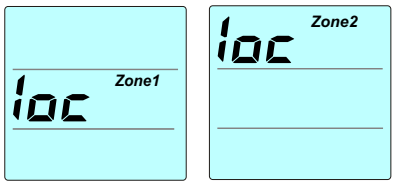
Press the **MENU** key to go to the next option.



OPTION 3 - ZCDWL and Sensor Location

Default is Zone1 Downstairs location. Use this option to change the ZCDWL location if the ZCDWL is installed in Zone2 (Upstairs) and the sensor is installed in Zone1 (Downstairs).

Press the **UP** key to select Zone2 Upstairs location or **Press** the **DOWN** key to select the downstairs location.



Press the **MENU** key to exit the Installer settings and return to normal operation or the control will automatically exit in a few seconds.

OPTION 4 - Linking

The Linking option (Ln) is only used if a replacement ZCDWL needs to be linked to an existing installation. Instructions for using this option will be provided with the replacement ZCDWL.

INSTALLATION

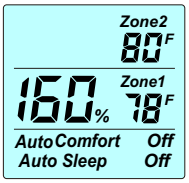
STEP 9 TEST AIRFLOW

This test can be used to verify the dampers are connected to the correct connectors on the DC3M. At the thermostat set the fan for continuous operation.

Press the **COMFORT** key to select Zone1 Comfort.

Press the **DOWN** key to set the airflow to 100% in Zone1. This is the baseline airflow with both dampers fully open. Feel the upstairs and downstairs airflow.

Press the **UP** key to increase airflow to 160% in Zone1. You should see a significant increase in the downstairs Zone1 airflow and a significant decrease in the upstairs Zone2 airflow.

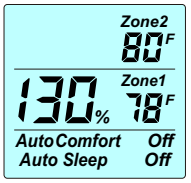


Press the **COMFORT** key to select Zone2 comfort and **Press** the **UP** key to set the airflow to 160%. Observe there is significantly more airflow going to the upstairs Zone2 and less going to the downstairs Zone1.

Reset the Zone1 and Zone2 Airflow

Press the **DOWN** key to return the Zone2 airflow to 130%.

Press the **COMFORT** key to select Zone1 Comfort and **Press** the **DOWN** key to return the Zone1 airflow to 130%.



Press the **COMFORT** key to select *Auto Comfort On*.

The ZCDC is now ready for the homeowner to use and enjoy.

TROUBLESHOOTING

Airflow appears to be reversed or not changing.

Make sure the connections for the upstairs and downstairs dampers are not reversed. Make sure the DC3M is powered and communicating by observing the LED on the DC3M is Green. Make sure the dampers are powered by observing a green LED on the actuators when the dampers are in a 100% open position.

Understanding Damper LEDs and Airflow

Airflow Displayed	Zone 1 Damper	Zone 2 Damper
100% Zone 2 100% Zone 1	Open Green LED	Open Green LED
More Airflow to Zone 1	Open Green LED	Partially Closed No LED
More Airflow to Zone 2	Partially Closed No LED	Open Green LED

No Display on ZCDWL

Check ZCDWL batteries are properly installed.

No LCD Backlight on ZCDWL when Key is Pressed

The ZCDWL batteries need to be replaced.

LED on DC3M is Off

Check the wiring of the DC3M to the HVAC equipment. There should be 24VAC at the DC3M R and C terminals.

Sensor Error

- - displayed where the Zone 2 temperature should be displayed indicates the TSWL sensor is not communicating. Batteries may need to be replaced. Also check that the DC3M is powered.

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