eControls

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

ZCDWL Ver 000 Jan 2025

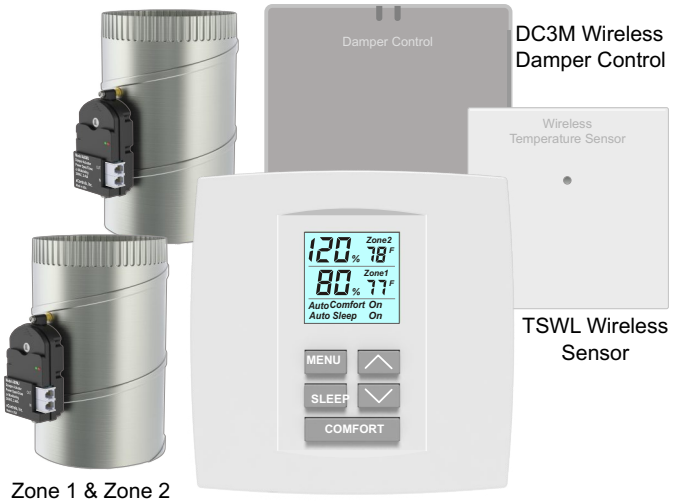
The ZCDWL 2-Zone Wireless Comfort Control works with your existing thermostat to solve the comfort problem found in two-story homes, where the upstairs is too warm during the summer and the downstairs is too cold during the winter.

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 a uniformly comfortable home. 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.

To learn how the ZCDWL complements smart thermostats with remote sensors, see page 4 for more information.



DC3M Wireless Damper Control

TSWL Wireless Sensor

Zone 1 & Zone 2 Dampers

ZCDWL 2-Zone Wireless Comfort Control

HOMEOWNER

Things to Know

AIRFLOW COMFORT SELECTION

Automatic Uniform 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

Automatically directs 30% more heating or cooling to the upstairs sleeping zone each night and 30% less to the unoccupied downstairs living 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.

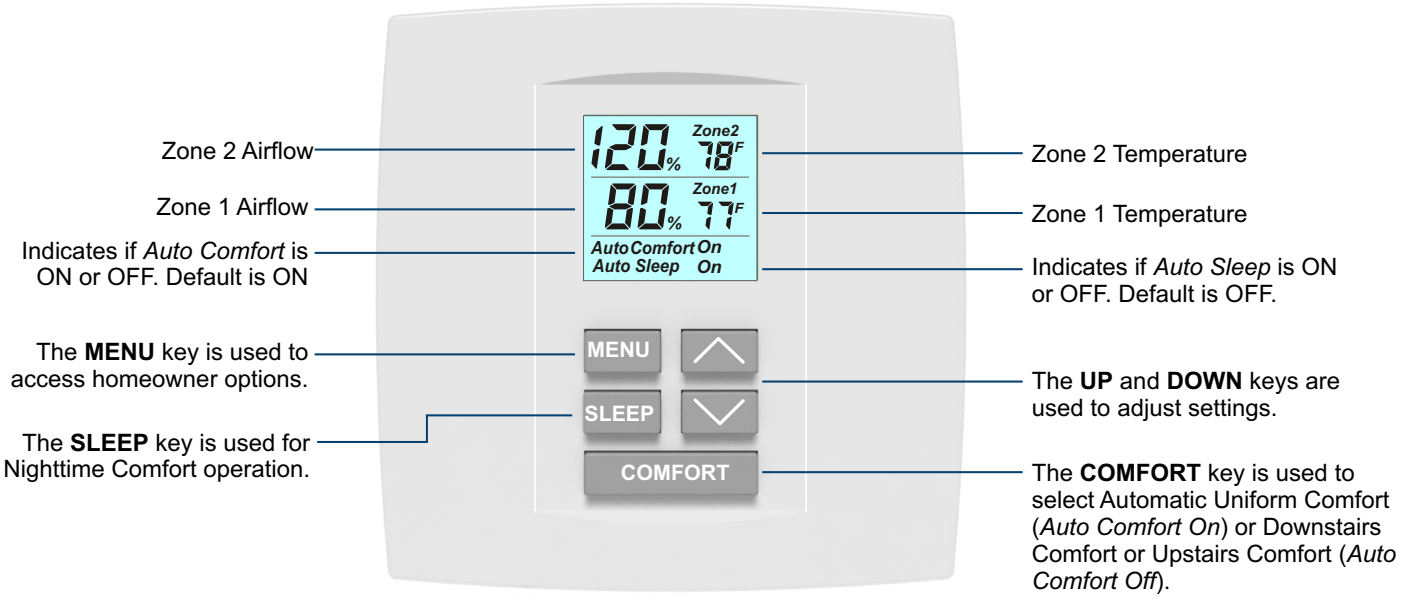
Starter Battery Replacement

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

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

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

Automatic Uniform Comfort

In Uniform 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 by **Pressing** 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 by **Pressing** 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.

Quick Tips For Auto Sleep Operation

- To set a new nightly start time for Auto Sleep, simply **Press** the **SLEEP** key at the desired start time.
- To end Auto Sleep operation and return to the previous Comfort selection, **Press** 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.

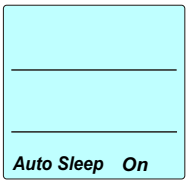
Turn Auto Sleep Option ON and Set Options

TURN AUTO SLEEP ON

Press the **MENU** key to display *AutoSleep*.

Press the **UP** key to turn *AutoSleep On*.

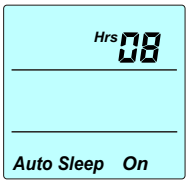
Press the **MENU** key to go to Timer Hours for Auto Sleep.



SET THE TIMER HOURS

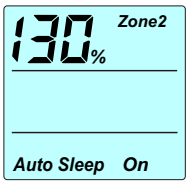
The default number of hours is 8 hours. To adjust, **Press** the **UP** or **DOWN** key.

Press the **MENU** key to go to Airflow Settings for Auto Sleep.

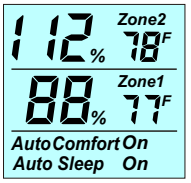


ADJUST THE AIRFLOW SETTING

The default airflow is 130%. To adjust, **Press** the **UP** or **DOWN** key.



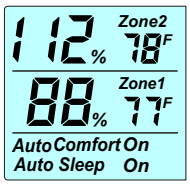
The control returns to normal operation when the backlight turns off. *Auto Sleep On* is now displayed.



Set Nightly Start Time (First Operation)

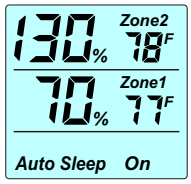
For the first operation only, the nightly start time needs to be set.

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.

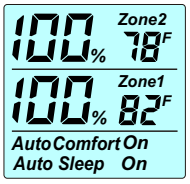
If desired, adjust the airflow by **Pressing** the **UP** or **DOWN** key. The setting is saved and becomes your default airflow at night.



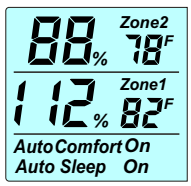
END OF AUTO SLEEP OPERATION

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** the **COMFORT** key to return to the previous Comfort selection.



If Automatic Uniform 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.



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 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 the **UP** or **DOWN** key to adjust the temperature. The setting is saved when the backlight turns off.

The control returns to normal operation when the backlight turns off.

Changing Batteries in ZCDWL Control

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

- Remove the cover of the ZCDWL by pressing in the areas indicated to release the cover. See Figure 1.
- Install 2 AAA batteries making sure the polarity is correct. See Figure 2. The ZCDWL display should be lit.
- Attach the ZCDWL to the subbase. See Figure 3.

Figure 1

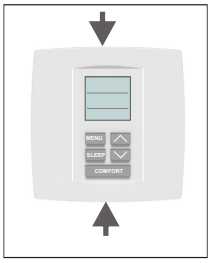


Figure 2

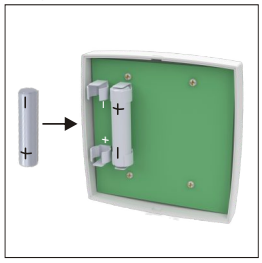


Figure 3

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.

- Remove the cover of the TSWL by pressing in the areas indicated to release the cover. See Figure 4.
- Install 2 AAA batteries making sure the polarity is correct. See Figure 5.
- Attach the TSWL to the base. See Figure 6.

Figure 4

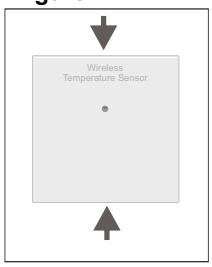


Figure 5

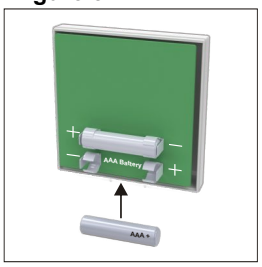
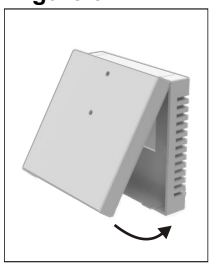


Figure 6



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.

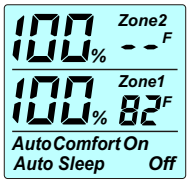
At night, use the thermostat's remote sensor located upstairs in the bedroom space to control the heating and cooling calls. The Nighttime Comfort option directs more heating and cooling upstairs and satisfies the heating or cooling call sooner, saving energy and optimizing comfort.

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

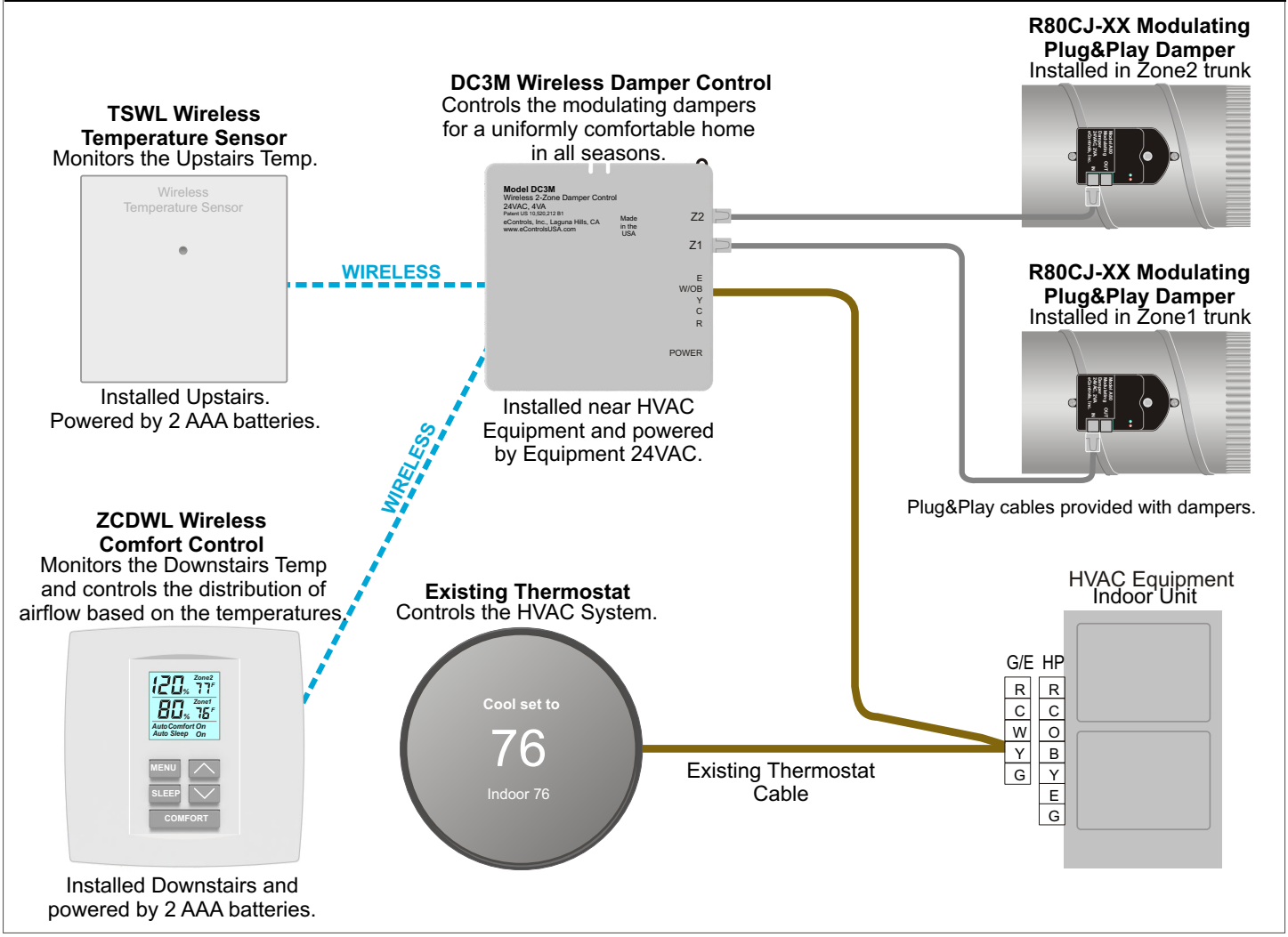
If the backlight on the ZCDWL does not come on when a key is pressed or the display is blank, the batteries should be changed.

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.

Wiring Diagram



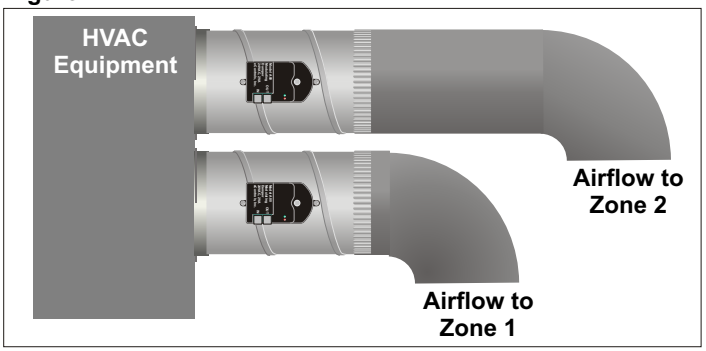
INSTALLATION

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. Install an R80CJ or RT80CJ damper in trunk supplying air to Zone 2. Install so crimped end is in the direction of airflow. Each damper uses 2VA of power. See Figure 1.

Figure 1



STEP 2 Install DC3M Damper Control

- Remove cover of the DC3M Damper Control by pressing the tabs in the area indicated to release the cover. See Figure 2.
- 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. See Figure 3.

Figure 2

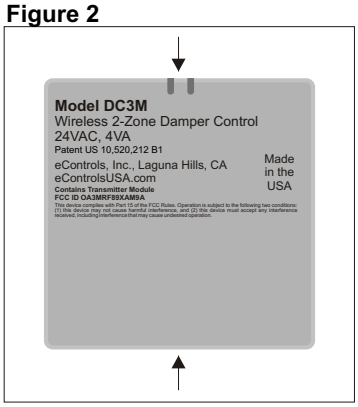
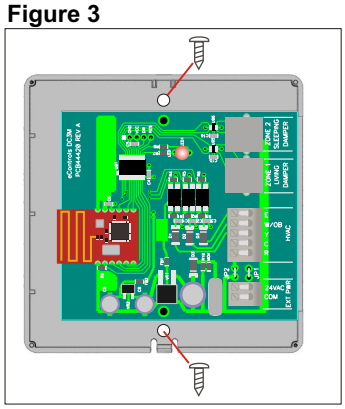


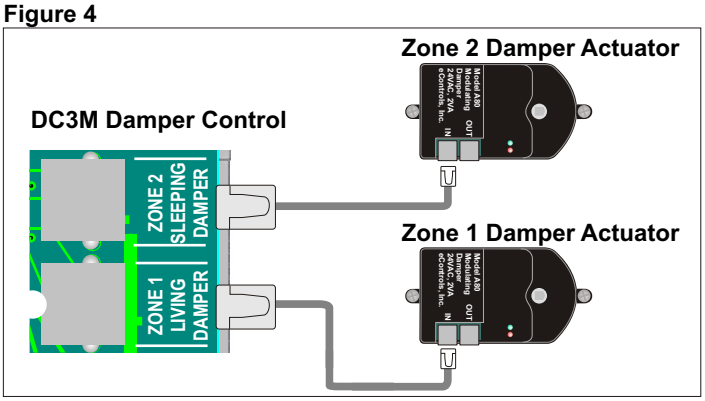
Figure 3



STEP 3 Connect Dampers to DC3M

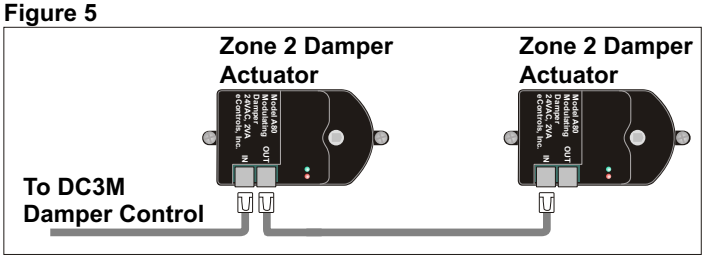
- Plug one end of the cable provided with the damper into the "IN" connector on the Zone 1 damper actuator then plug the other end into the Zone 1 connector on the DC3M Damper Control. Using the other cable, plug one end of the cable into the "IN" connector on the Zone 2 damper actuator then plug the other end into the Zone 2 connector on the DC3M Damper Control. See Figure 4.

Figure 4



- 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. See Figure 5. Up to 6 dampers can be powered by the equipment or 24VAC, 40VA transformer.

Figure 5



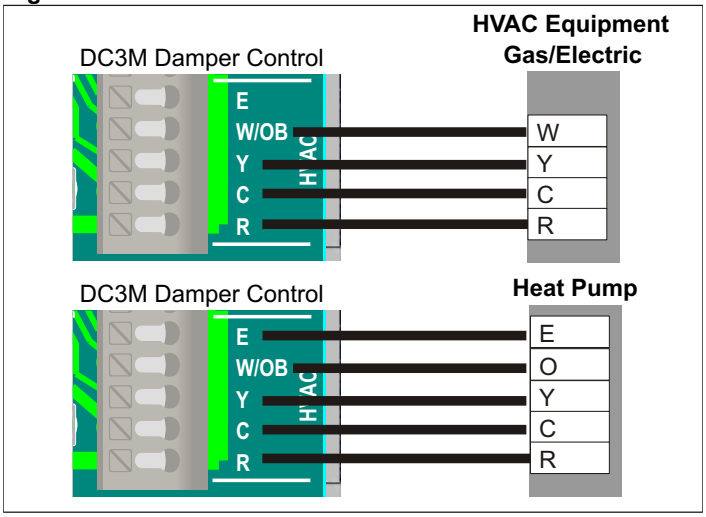
STEP 4 Wire DC3M to Equipment

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

The DC3M Damper Control is wired to the equipment for 24VAC power and to monitor the status of heating and cooling calls.

- **Gas/Electric Equipment** - Use 4-conductor, 18 or 20 gage thermostat cable to connect the DC3M Control terminals R, C, Y and W/OB to the equipment terminals R, C, Y and W. See Figure 6.
- **Heat Pump Equipment** - Use 4 or 5-conductor, 18 or 20 gage thermostat cable to connect the DC3M Control terminals R, C, Y, W/OB and E to the equipment terminals R, C, Y, O or B and E. See Figure 6.

Figure 6



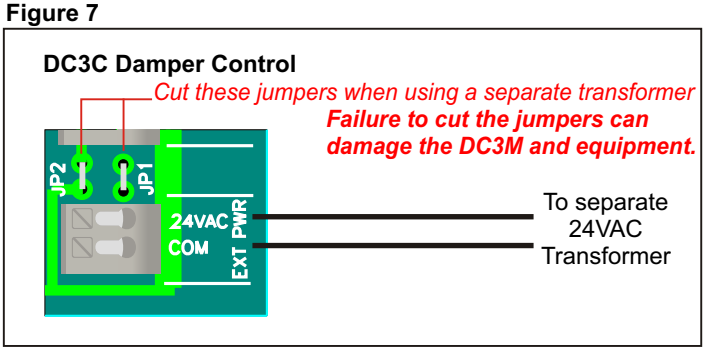
INSTALLATION

Optionally Use Separate 24VAC Transformer

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.

- 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. See Figure 7.
- When wiring to a transformer, cut jumpers JP1 and JP2 on the DC3M. Failure to cut the jumpers can damage the DC3M and equipment.

Figure 7



STEP 5 Power DC3M and Dampers

Power the equipment. The DC3M Damper Control and 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 rotating the cover to release the cover. See Figure 8. Mount the base in the desired location using the hardware provided.
- Install the 2 AAA batteries included. See Figure 9. Be sure to observe the polarity marked on the PCB. Reattach the TSWL to the subbase.

Figure 8

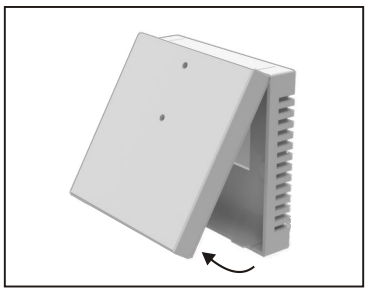
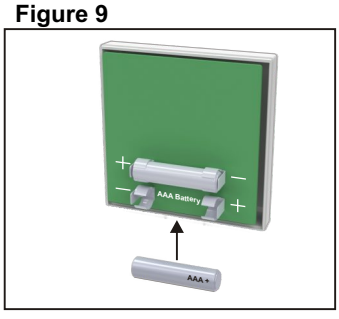


Figure 9



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 cover of the ZCDWL by rotating it as shown in Figure 10. Install the base in the desired location using the hardware provided.
- Install the 2 AAA batteries included being sure to observe the polarity marked on the PCB. See Figure 11. Reattach the ZCDWL to the subbase. See Figure 11.

Figure 10

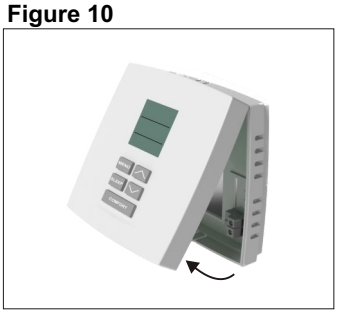
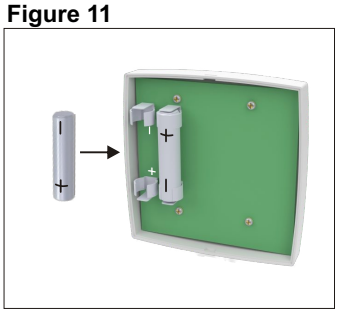
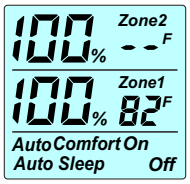


Figure 11



- 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

To access the installer options, **Press** the **MENU** key and the **COMFORT** key at the same time to display the first Installer option.

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) equipment.

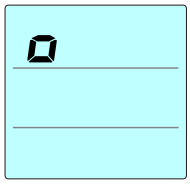
Press the **MENU** key to go to the next option.

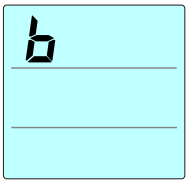
INSTALLATION

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

Defaults to 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.

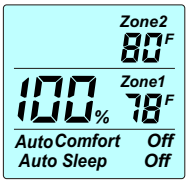
Press the **MENU** key to exit the Installer settings and return to normal operation or the control will automatically exit in a few seconds.

STEP 9 TEST AIRFLOW

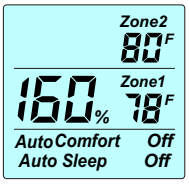
Set the thermostat for a cooling call or continuous fan call.

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. There is now 60% more airflow being sent to Zone1 and 60% less to Zone2. Feel more airflow in Zone1 and less in Zone2.



Press the **COMFORT** key to select Zone2 comfort and **Press** the **UP** key to set the airflow to 160%. Observe there is 60% more airflow going Zone2 and 60% less going 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 ZCDWL 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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