ProZone

Installer Manual
Pro211P Zoning Panel

These zoning panels offer many features that simplify installation in RNC and AOR installations.

- Panel automatically controls bypass and eliminates installers having to set and test bypass.
- Use an external modulating bypass damper or use the non-calling zone dampers for bypass.
- A2L Refrigerant Leak monitor opens all dampers when equipment indicates a leak occurred.
- On-panel display for selecting options and monitoring operation.
- Cloning multiple panels to the same configuration simplifies installation and eliminates errors.
- Works with single stage Gas/Electric systems.
- Works with Heat/Cool thermostats.
- Eliminates expensive, add-on Bypass controls.
- These zoning panels provide superior operation, easier installation and lower cost than competitive panels.

Patent Pending

Features

Zoning Panels for GE and Heat Pumps

Model	Zones	Gas/Electric	Heat Pump
PD332P	3	2H/2C	2Compressor/1Aux
PD311P	3	1H/1C	NA
PD211P	2	1H/1C	NA
PD321P	3	NA	1Compressor/1Aux
PD221P	2	NA	1Compressor/1Aux

Compatible Zone Thermostats

A heat/cool thermostat is used in all zones.

Zone Dampers

Zone dampers are plug&play with modulating actuators. 25' Cables provided with dampers.

A2L Leak Monitor

Opens dampers when equipment indicates a leak has been detected.

Automatic Bypass Control

The panel automatically positions an external modulating bypass damper or the non-calling modulating zone damper based on which zones are calling, zone size and bypass damper size.

On Panel Display

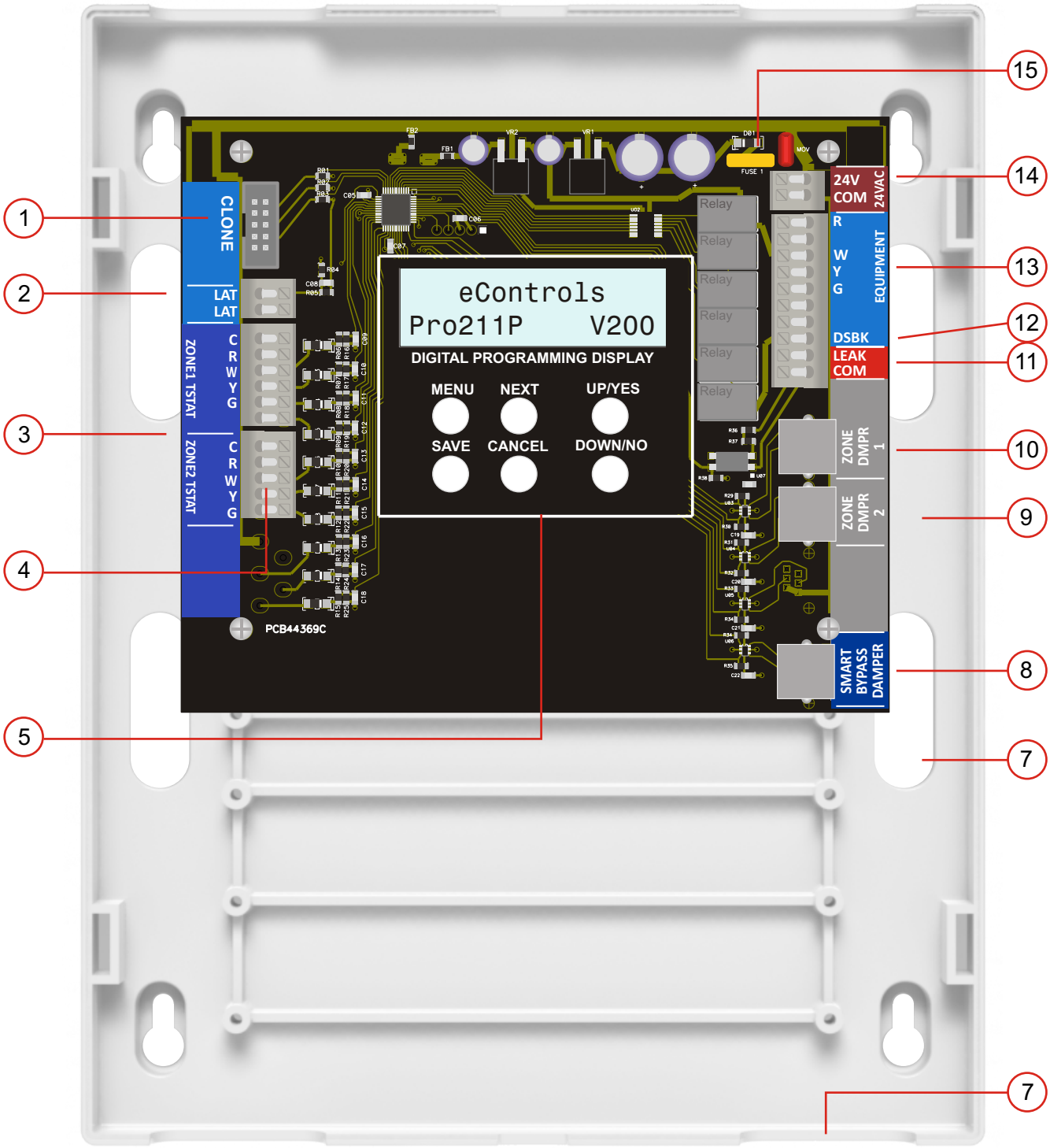
The 16x2 character, backlit display allows the setting of a wide range of options and provides real time monitoring of panel operation.

Modulating Dampers

The damper uses a DC motor that provides twice the torque and 4 times the life of typical spring return dampers and uses only 2VA operating power.

eControls

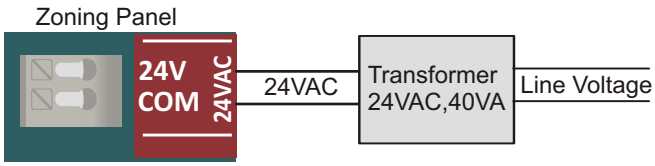
Pro211P Zoning Panel



1. Connector for cloning panels with same options.
2. Terminals for Leaving Air Temperature sensor for downstaging when limits are exceeded.
3. Terminals for heat/cool thermostats.
4. Terminals are push in, screwless type for easy wiring.
5. On-panel, backlit, 2x16 character LCD for intuitive programming of options and displaying panel status.
6. Wiring access openings at top and bottom of case.
7. Wiring access openings so wiring can be run behind case.
8. Connector for external, modulating bypass damper controlled by panel.
9. Large channels for wiring.
10. Connectors for plug&play zone dampers.
11. Terminals for equipment Leak Detection output– opens all dampers.
12. DSBK terminal for operating fan in low speed when only one zone is calling.
13. Terminals for gas/electric equipment.
14. Terminals for 24VAC, 40VA transformer.
15. Automatic reset fuse.

1. 24VAC Power

A 40VA, 24VAC transformer can power the panel and up to 8 dampers and is connected as shown below.



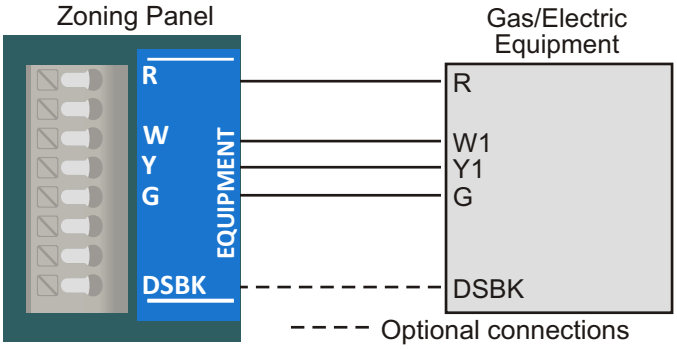
Shown below are typical power requirements for different zoning components.

Panel	10VA
Zone or Bypass Damper	2VA
Simple Zone Tstat	2VA
Smart, WiFi Zone Tstat	4.8VA

2. HVAC Equipment

Gas/Electric Equipment

The Pro211P is compatible with single stage cooling and single stage heating. The wiring of gas/electric equipment is shown below.



Fan in Heating

The Pro211P can optionally activate the fan during heating. In gas furnaces the fan is normally activated by a temperature sensor in the leaving air plenum. The fan is alwys activated by the panel in cooling calls.

DSBK Terminal

Some equipment have a DS, BK or HUM terminal that operates the fan in cooling at a lower speed to remove more humidity during cooling calls. This option can also be used to reduce the fan speed in cooling when only one zone is calling to reduce the amount of bypass. The DS function is activated when the panel applies 0VAC to the DS, BK or HUM equipment terminal.

A2L Refrigerant Leak Monitor

Equipment using A2L refrigerant have either a dedicated output that indicates when a leak has occurred or some equipment turn off 24VAC to the equipment R terminal when a leak occurs.

Equipment with a Dedicated Terminal

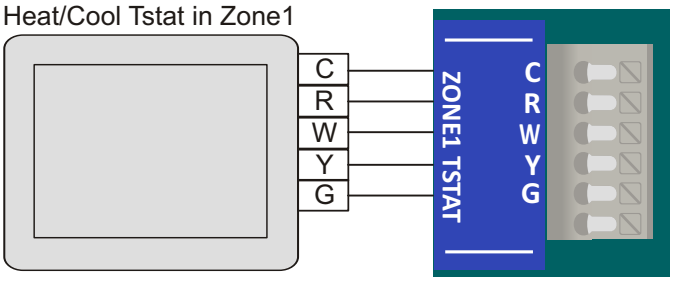
Connect the Dedicated terminal at the equipment to the LEAK terminal at the panel and connect the equipment C terminal to the COM terminal at the Panel that is next to LEAK.

Equipment Turns R Off

Connect the R terminal at the panel HVAC terminals to the LEAK terminal at the panel and connect the equipment C terminal to the COM terminal at the Panel that is next to LEAK.

3. Zone Thermostats

The Pro211P is compatible with any 24VAC powered Heat/Cool Thermostat in all zones.



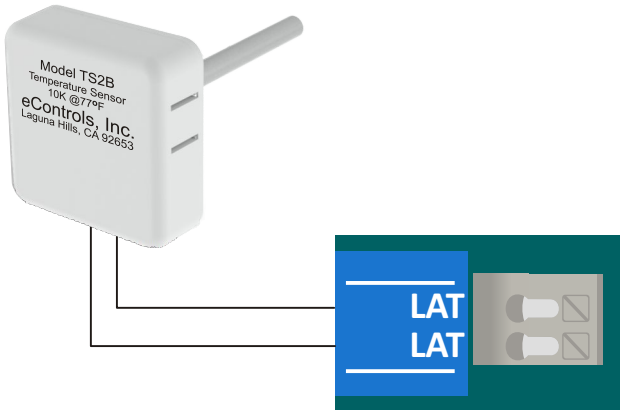
4. Leaving Air Temperature Sensor

A Leaving Air Temperature Sensor is only required when an external bypass damper is used and dumps excess airflow into the Return plenum. The TS2B Temperature Sensor is used to monitor the leaving air temperature. If the temperature exceeds the High Temp Limit, the panel will down-stage the equipment. If the panel is in a stage1 call, it will turn the heating or cooling call off and activate the fan.

4. Leaving Air Temperature Sensor

In heating the panel will up-stage or restore the call when the leaving air temperature has dropped 20F or to 95F. In cooling the panel will up-stage or restore the call when the leaving air temperature has risen 10F or to 65F.

The TS2B sensor is installed in the leaving air or discharge air plenum so the 6-inch stainless steel tube is in the airflow.



5. Zone Dampers

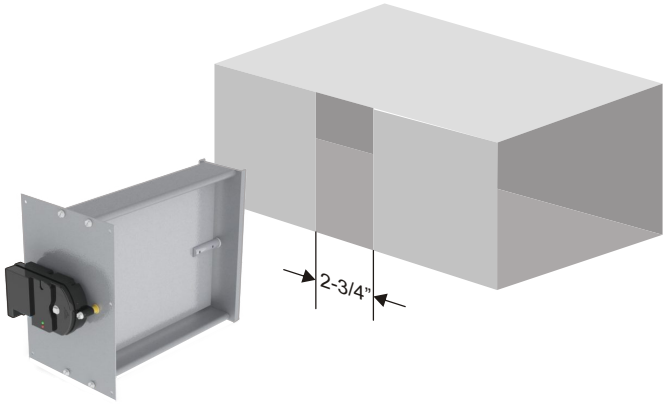
The round zone dampers are available in 6 to 20-inch diameters and rectangular zone dampers are available in 8x8 inches to 16x20 inches. A modulating actuator is used and allows the dampers to be positioned anywhere from fully closed to fully open in as little as 2% increments when the non-calling zone damper is used for bypass.

The actuators use a DC motor with about twice the torque of typical spring return actuators and yet only use 2VA when positioning and 1VA when holding position. The damper can fully open/close in about 3.5 seconds. The actuator uses electronic motor control for high reliability and long life. A 25-foot Plug&Play cable is supplied with each damper

R80ZJ-DD
Modulating Damper

RT80ZJ-HHXDD
Modulating Damper

Rectangular dampers require a cut in the duct 2-3/4 inches by the height of the duct. The damper slides into the opening and is secured with 6 sheet metal screws and should be sealed with duct tape or sealant.



A 25-foot cable with 6-pin RJ11 connectors is provided with each damper. Plug the cable into the damper actuator IN connector and plug the other end into the corresponding connector on the panel. Plug&Play connection of the dampers to the panel is faster and eliminates wiring errors. Longer cables or extension Plug&Play cables are available.

If two or more dampers are required to define a zone, dampers can be daisy chained together by connecting the OUT connector on the first damper to the IN connector on the second damper.

6. Automatic Bypass Control

The installer can select bypassing using an external modulating damper automatically controlled by the zoning panel or using the non-calling zone damper for bypass that is automatically controlled by the zoning panel.

External Bypass Damper

The external modulating bypass damper is automatically positioned by the panel to bypass the excess airflow to the return or a dump zone when one or more of the zones are not calling.

When External Bypass is selected, the panel calculates and displays the minimum bypass damper size in CFM. Use your favorite conversion chart or the charts shown to convert the CFM to a damper size.

When calculating the bypass and the minimum bypass damper CFM, the panel uses the following.

- The CFM demand of the zones calling.
- Size of the bypass damper in cfm.
- Fan speed reduction in heating, typically 80% of cooling.
- Fan speed in cooling if DSBK is active, typically 80%.
- Maximum allowable CFM delivered to calling zones during bypass– typically 150% of rated CFM.

When different zone sizes are used or options need to be changed, use the display and select Change Bypass Options.

Non-Calling Zone Bypass

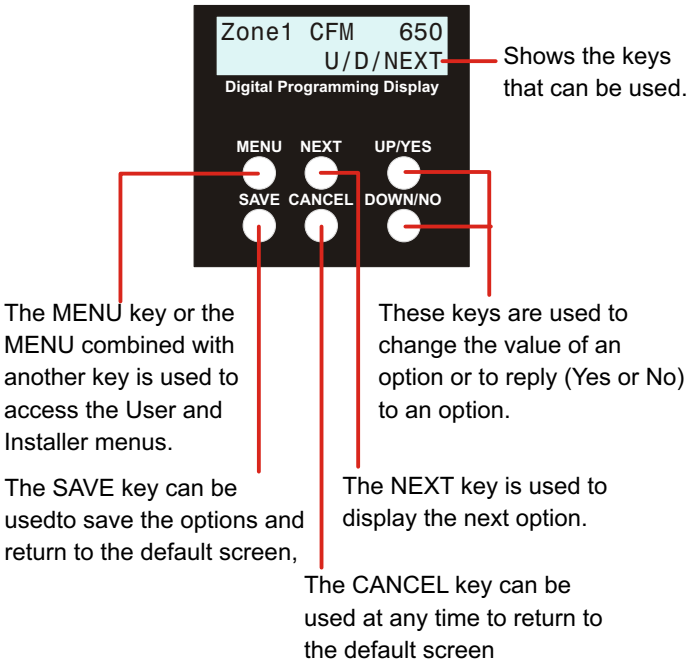
The non-calling modulating zone damper is automatically positioned by the panel to bypass the excess airflow and eliminate having to install an external bypass and discharge air temperature sensor.

There are some limitations to using Non-Calling Zone bypass. If the zones are different in size and one zone is small and is the only zone calling, the airflow through the non-calling zones can be large and degrade the benefits of zoning.

The total CFM to be bypassed using the non-calling zone dampers is calculated the same as when using external bypass.

About the LCD Display and Keys

The LCD display shown below is a typical screen when changing an option.



Installer Menu

Press MENU+UP to access the Installer options. The display will prompt the installer through the available options.

User Menu

Press MENU to display the equipment call status and use NEXT to display the zone thermostat call status, zone damper positions and the bypass damper position if used.

Cloning a Panel

Press MENU+DOWN to access the cloning Menu to copy the option selections in one panel into another panel.

Factory Settings

The panel is shipped with the factory set options as shown below.

Equipment	Gas/Electric
Fan in Heating	No
Heating Stages	1
Cooling Stages	1
Zone Thermostats	GE
Zones Used	2
A2L Leak Monitor	Off
High LAT Temp Limit	160F
Low LAT Temp Limit	40F
Bypass Type	Ext Modulating Damper
Zone1 CFM	800 cfm
Zone2 CFM	800 cfm
Heating CFM Percent	80% of high speed
Over CFM Percent	150% of rated CFM
Ext Bypass Damper	400 cfm
Minimum Off Time	3 Minutes
Minimum Run Time	1 Minutes
Staging by Zones Calling	Yes
Zones Calling for Stage2	2
Staging by Call Time	Yes
Call Time for Stage2	20 minutes
Purge after Call	Yes
Purge Time	90 seconds
Fan in Purge	Yes
Dampers Open in Purge	Last zones calling
Auto Changeover	No
Time to Auto Changeover	20 Minutes
DSBK	No
DSBK Max Zones	1

Customized Setup

The installer can change any of the following options to customize the panel to most any equipment.

Change Equipment Settings Y/N

Press YES to change the Equipment options Press NO to display the next option.

Gas/Electric Selections

Fan In Heat Y/N/NEXT

Press YES key to select the panel activating the fan during heating calls.

Press NO or NEXT to display the next option.

A2L Leak Monitor

Change A2L Leak Monitor Y/N

Select YES key to enable the Leak Monitor. Press NO to display the next option.

A2l Active 24VAC Y/N/NEXT

Press YES to select that 24VAC on the panel LEAK terminal indicates a refrigerant leak.

A2l Active 0VAC Y/N/NEXT

Press NO to select that 0VAC on the panel LEAK terminal indicates a refrigerant leak.

Press NEXT to display the next option.

Leaving Air Temperature Limits

Change LAT Limit 40/160F Y/N

Press YES to select changing the high and low LAT Limits. Press NO for the next option.

High LAT 160F Limit U/D/NEXT

Use the UP/DOWN keys to change the high temperature limit used in heating. Then press NEXT.

Low LAT 40F Limit U/D/NEXT

Use the UP/DOWN keys to change the low temperature limit used in cooling. Then press NEXT.

Bypass Options

Change Bypass Option Y/N

The Pro211P automatically controls bypass using the non-calling modulating zone damper or an external modulating bypass damper.

Press the YES key to change the Bypass options or press NO to display the next option.

Non-Calling Zone Damper Y/N/NEXT

Press NO to select bypass using the non-calling zone damper.

Ext Modulating Damper Y/N/NEXT

Press YES to select bypass using an external modulating bypass damper.

Press NEXT to display the next option.

Zone1 CFM 800 U/D/NEXT

Zone2 CFM 800 U/D/NEXT

Set the CFM Demand of each zone being used. The chart on the next page shows the relation between the damper size and CFM rating. Use the UP/DOWN keys to change the zone CFM demand. Then press NEXT.

Heating CFM 80% U/D/NEXT

In heating the fan generally runs at a lower speed and reduces the amount of bypass required. Use the UP/DOWN keys to change the percentage and then press NEXT.

Max OverCFM 150% Allowed U/D/NEXT

Use the UP/DOWN keys to select the additional CFM that calling zones can accept without being noisy or annoying. Then press NEXT.

BP Damper 400 CFM U/D/NEXT

The panel will calculate the CFM rating of the external bypass damper if used. If the CFM is between damper diameters, increase the CFM to the larger size. Use the UP/DOWN keys to change the bypass damper CFM rating.

Press NEXT to display the next option.

Damper Diameter inches	Design Airflow cfm
6	85
7	125
8	180
9	240
10	325
12	525
14	750
16	1200
18	1500
20	2000

Design cfm for round dampers.

HEIGHT - ACTUATOR FACE	DEPTH 8	10	12	14	16	18	20
8	RT80ZJ-08x08 230 cfm	RT80ZJ-08x10 310 cfm	RT80ZJ-08x12 400 cfm	RT80ZJ-08x14 490 cfm	RT80ZJ-08x16 580 cfm	RT8ZJ-08x18 670 cfm	RT80ZJ-08x20 750 cfm
10	RT80ZJ-10x08 310 cfm	RT80ZJ-10x10 430 cfm	RT80ZJ-10x12 550 cfm	RT80ZJ-10x14 670 cfm	RT80ZJ-10x16 800 cfm	RT80ZJ-10x18 930 cfm	RT80ZJ-10x20 1060 cfm
12	RT80ZJ-12x08 400 cfm	RT80ZJ-12x10 550 cfm	RT80ZJ-12x12 680 cfm	RT80ZJ-12x14 800 cfm	RT80ZJ-12x16 950 cfm	RT80ZJ-12x18 1100 cfm	RT80ZJ-12x20 1250 cfm
14	RT80ZJ-14x08 490 cfm	RT80ZJ-14x10 670 cfm	RT80ZJ-14x12 800 cfm	RT80ZJ-14x14 930 cfm	RT80ZJ-14x16 1060 cfm	RT80ZJ-14x18 1190 cfm	RT80ZJ-14x20 1320 cfm
16	RT80ZJ-16x08 580 cfm	RT80ZJ-16x10 800 cfm	RT80ZJ-16x12 950 cfm	RT80ZJ-16x14 1060 cfm	RT80ZJ-16x16 1210 cfm	RT80ZJ-16x18 1360 cfm	RT80ZJ-16x20 1510 cfm
18	RT80ZJ-18x08 670 cfm	RT80ZJ-18x10 930 cfm	RT80ZJ-18x12 1100 cfm	RT80ZJ-18x14 1190 cfm	RT80ZJ-18x16 1360 cfm	RT80ZJ-18x18 1530 cfm	
20	RT80ZJ-20x08 750 cfm	RT80ZJ-20x10 1060 cfm	RT80ZJ-20x12 1250 cfm	RT80ZJ-20x14 1320 cfm	RT80ZJ-20x16 1510 cfm		

Design cfm for rectangular dampers.

Change Timing Options

`Change Timing Option Y/N` Press the YES key to change the timing options. Press NO for the next options.

`Min Off Time 3 Minutes U/D/NEXT` Use the UP/DOWN keys to set the minimum off time between calls and then press NEXT.

`Min Run Time 1 Minutes U/D/NEXT` Use the UP/DOWN keys to set the minimum run time before a call is terminated. Then press NEXT.

Advanced Options

`Change Advanced Option Y/N` Press YES key to change the Advanced Options. Or press NO to display the next option.

`Purge After Call Y/N` Press YES key to enable Purge. Purge will turn the heating or cooling off at the end of a call but keep the fan operating. Press NEXT for the next option.

`Purge Time 90 Seconds U/D/NEXT` Use the UP/DOWN keys to change the Purge Time and then press NEXT.

`Fan In Purge Yes Y/N/NEXT` Press YES to select fan operating in purge or press NO to de-select fan operation in Purge. Press NEXT for the next option.

`Dampers In Last Purge Y/N/NEXT` Press YES to select that only the zone dampers that were open when Purge started remain open.

`Dampers In All Purge Y/N/NEXT` Press NO to select that all zone dampers open during Purge. Then press NEXT.

`Auto CO No Y/N/NEXT` Press YES to enable automatic changeover option or press NO to turn option Off. Press NEXT for next option.

`Min Run Time 20 Minutes U/D/NEXT` Use the UP/Down OWN keys to set the number of minutes the panel must be continuously calling before switching to the opposed system. Then press NEXT.

`DSBK Option Y/N/NEXT` On Equipment with a DS, BK or HUM input, the DSBK option can be used to lower the fan speed in cooling to reduce bypass. Press YES to enable the option or press NO to turn it off and display the next option.

`DSBK Max Zones 1 U/D/NEXT` Use the UP/DOWN keys to set the maximum number of zones calling to activate DSBK. Press NEXT to display Save Options.

Save Options

`Save Options Y/N` Press YES to save the options and return to the main display. If no options were changed options were changed but you don't want to save them press NO.

Status Display

To display the system status press the MENU key. One of the Status displays shown below will be displayed.

Use the NEXT key to cycle through the system status, zone thermostat status, zone damper status and the external bypass damper if used. Press CANCEL to exit.

`Status Off` `LAT 74`	No calls active.
`Status Heating1` `LAT 137`	Calling for Stage1 Heating.
`Status Cooling1` `LAT 137`	Calling for Stage1 Cooling.
`Status Heating` `LAT 137 Purge`	In Heating Purge cycle.

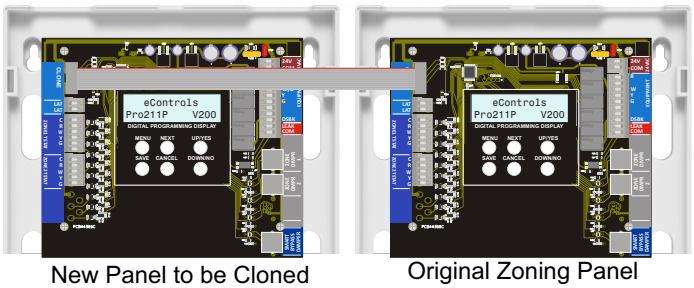
Press Next to display zone thermostat status.

`T1-Htg T2-Htg`	Press Next to display damper status.
`D1-Opn D2-17%`	Damper display when bypassing using non-calling zone dampers. The percent shown is amount the damper is open and bypassing. Press Next to display the next data.
`D1-Opn D2-Cls`	Damper display when external bypass damper is used. Press Next to display external bypass damper status.
`Bypass 47%` `Damper 180 CFM`	Percent indicates how much the damper is open. Press Next to return to the default display.
`Bypass Closed` `Damper 0 CFM`	

Cloning Panels

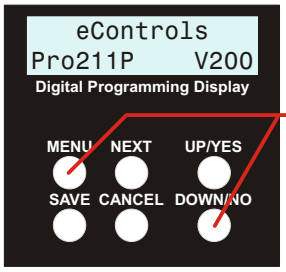
The option settings of one panel can be easily copied into multiple panels. This insures all the panels for a given home model operate the same.

Connect the two panels using the ribbon cable (PN 44395). Connect the panels containing the options to be copied to 24VAC. The panel is ready to be cloned.



New Panel to be Cloned

Original Zoning Panel



On the new panel to be cloned, press the MENU and DOWN keys.

`Clone New` `Panel Y/N/NEXT`	Set the new panel to New by pressing the YES key and then press the NEXT key.
`Waiting For Data` `CANCEL`	The New panel will display Waiting for Data. To terminate cloning press the CANCEL key.

On the Original panel containing the options to be cloned, press MENU and DOWN keys.

`Clone Original` `Panel Y/N/NEXT`	Set the new panel to Original by pressing the NO key and then press NEXT.
`Sending Data` `CANCEL`	The Original panel will display Sending Data. To terminate cloning press the CANCEL key.
`Cloning Done` `CANCEL`	When the option settings have been copied to the New panel the message Cloning Done is displayed on both panels. To terminate cloning press the CANCEL key.

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