

Z2000 MODULATING ZONE COMFORT SYSTEM CONTROL PANEL

APPLICATION

Ruskin Model Z2000 is a commercial zone control system panel that allows a single heating and cooling unit to have up to 20 individual zones. Each zone is controlled by its own space thermostat and motorized damper. If a majority of zones are calling for heat, the system will operate in the heating mode. The two stages of heat will be cycled to maintain the heating discharge air set point. If a majority of zones are calling for cooling, the system will operate in the cooling mode and the two stages of cooling will be cycled to maintain the cooling discharge air set point. If the number of zones calling for heating and cooling are equal, the system will operate in the cooling mode first. This is known as Cooling priority. Each zone damper or diffuser will modulate, based on zone and discharge air temperature to maintain the individual zone temperature set point. A barometric or electronic bypass damper will modulate to maintain the duct static pressure.

STANDARD CONSTRUCTION

CONTROL PANEL DIMENSIONS

13¹/₂" high x 11" wide x 2" deep (343 x 279 x 51)

MATERIAL

#18 aluminum with 4 knock-outs on top (open bottom)

DOOR

Fully removable, self-centering

FINISH

Blue anodized

VOLTAGE

24 VAC (Use a dedicated 24 VAC, 75 VA Transformer - by others)
3.3 VA per individual zone damper/diffuser actuator.

TEMPERATURE

32° F to 120° F (0° C to 49° C)

PANEL WEIGHT

10.0 lbs (4.5 kg)

RATING

NEMA 1

SYSTEM FEATURES

- Fully modulating zone damper or diffuser actuators
- Control up to 20 zones per single HVAC unit
- Auto Heat/Cool changeover
- Works with Single Stage, Multi-stage or Heat pump systems
- No Programming Required
- Auxiliary heat and cool options for each zone
- Night Setback option
- LED indicator lights reveal status of equipment and zones
- Fused inputs and outputs to protect the circuit
- 4 Year Control Panel Warranty

NOTE: Dimensions shown in parentheses () indicate millimeters.

Z2000 SYSTEM OVERVIEW

Z2000 comfort system zone dampers are available in round, rectangular and VAV diffusers. All three types are controlled by a P+1 modulating thermostat that controls the mode of operation based on duct temperature. The thermostat controls the zone damper to maintain room temperature in both cooling and heating modes. When the zone temperature falls below the heating setpoint, the zone damper sends a signal to the Z2000 control panel requesting cooling. These signals are used to determine the model (heating or cooling) of the HVAC unit as described above. The zone thermostat



Z2000 CONTROL PANEL

Shown with available system components.



ZDS15 with Z2000RT shown.

Combine square, round, or diffuser dampers to provide a comfortable indoor environment for up to 20 zones per air handling unit with the Z2000 system. Order a Z2000RT zone temperature sensor with each zone control product to properly control each zone in the system. Complete the package with a bypass damper and Z2000DAT discharge air temperature sensor

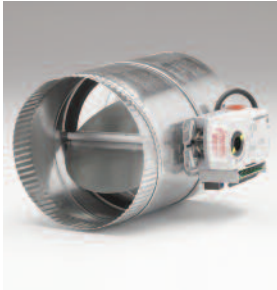
heating output can also be used to control auxiliary baseboard, duct or ceiling radiation heat. A bypass damper is installed between the supply and return air duct to maintain the proper system static pressure. Bypass dampers are available in both electronic and barometric type. Electronic bypass dampers are recommended for systems with static pressure of 0.75" w.c. (187 Pa) and over. Barometric bypass dampers are recommended for systems under 0.75" w.c. (187 Pa).

COMPONENT OPTIONS

ZONE CONTROL OPTIONS



Ruskin Model ZDS15
Extruded aluminum zone damper with factory mounted actuator and logic board



Ruskin Model ZDR25
Round galvanized zone damper with factory mounted actuator and logic board



Ruskin Model ZDD25
Diffuser with integrated zone damper and factory mounted actuator with logic board

TRACER DAMPER OPTIONS

Models ZDS15, ZDS25 and ZDD25 may be ordered without the logic board and duct sensor. Operate up to three additional dampers in the same zone from a single board. All damper positions will be the same as the primary damper.

BYPASS DAMPER OPTIONS



Ruskin Model ZEBD25
Round galvanized bypass damper with factory mounted actuator and logic board



Ruskin Model ZBBD25
Round galvanized zone damper with factory mounted counterweight

Z2000 SYSTEM SENSORS



Ruskin Model Z2000RT
Zone temperature sensor (one required per zone)



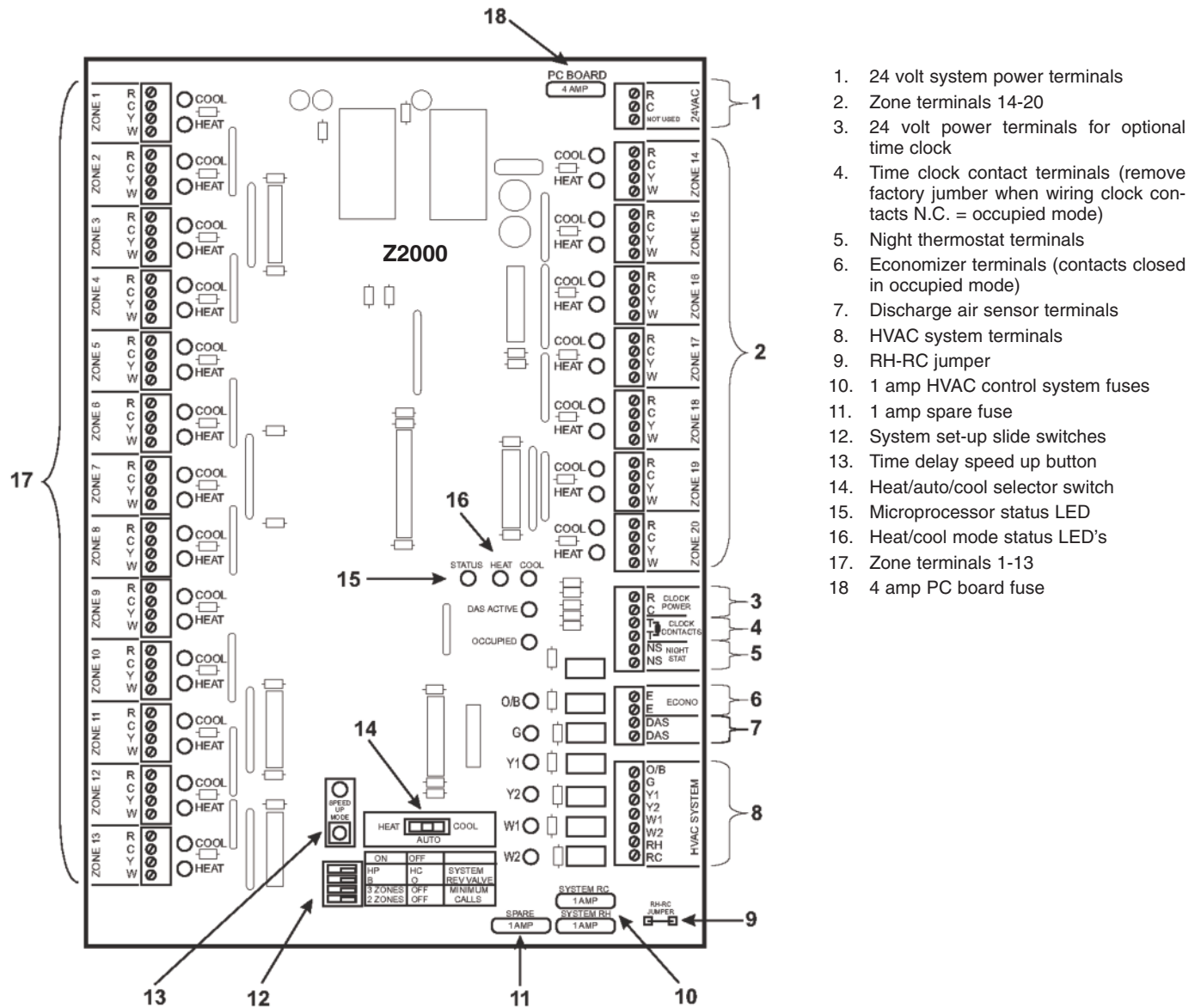
Ruskin Model Z2000DAT
Discharge air temperature sensor (one required per HVAC unit)

Z2000 SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans, or in accordance with schedules, a complete zone control comfort system meeting the following requirements. Zone control system shall operate up to twenty actuated dampers, zone thermostats and bypass damper through a single logic board. Logic board shall be housed in an anodized aluminum NEMA1 enclosure with adequate knockouts for wiring to local and national code requirements. Thermostats for each zone shall be fully modulating and fully compatible with the logic board and zone damper actuator. Zone dampers, actuators, thermostats and logic board shall be provided by the same manufacturer to ensure compatibility. System shall have auto changeover feature capable of controlling two stages of heating and cooling and

shall be compatible with heat pumps. Complete system shall install and function without the need of additional field programming or adjustment through electronic service tools or laptop computers. All components of the system shall be suitable for indoor ambient conditions and shall be rated for 32°F and 120°F (0°C and 49°C). System logic board shall be equipped with diagnostic LEDs and shall not require battery back-up to maintain system functionality after loss of power. System shall operate between 90% and 100% of nominal voltage rating and not be affected by radio frequency interference. System, in all respects, shall be equal to Ruskin Series Z2000 Zone Comfort System.

Z2000 COMPONENT WIRING DIAGRAM



Z2000 PANEL OPERATION

The Z2000 system panel does not generally require field adjustments under normal operation. A RED LED light indicates the zone is calling for heat and a GREEN LED light indicates the zone is calling for cooling. The "Minimum Calls" switch selection indicates the number of like calls that must take place before the heating or cooling equipment will start.

MAJORITY WINS

If more zones call for heating than cooling, the system will be in the heating mode. If more zones call for cooling than heating, the system will be in the cooling mode.

COOLING PRIORITY

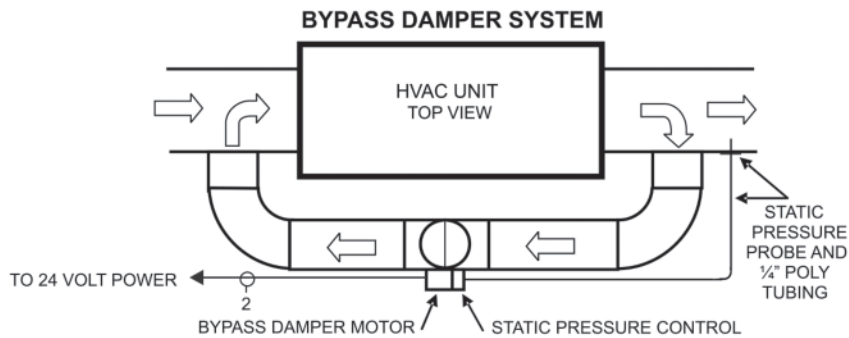
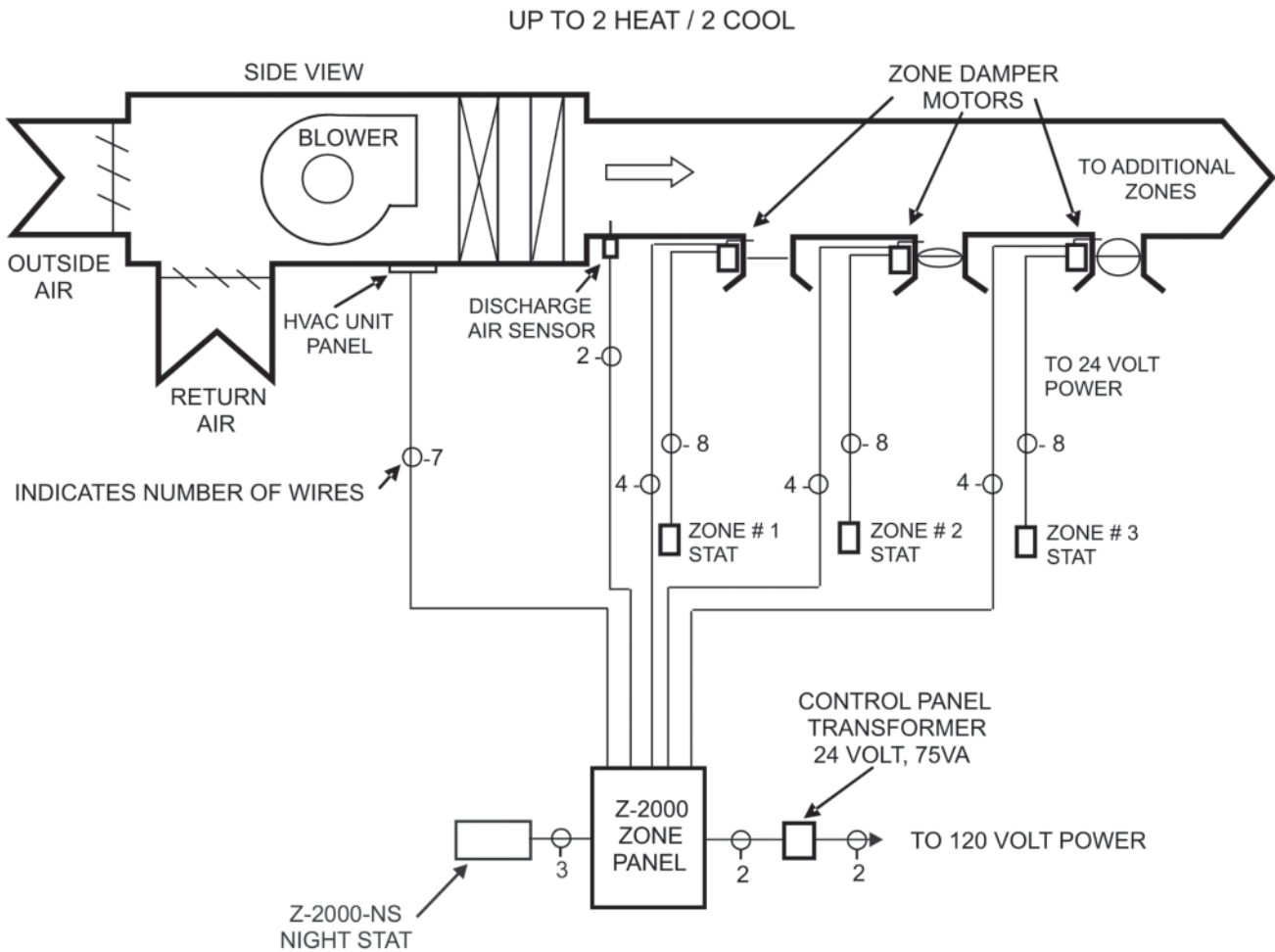
If the number of heating and cooling calls are equal, the system will be in the cooling mode. Cooling always takes precedence.

The heating discharge air setpoint is approximately 140°F (60°C).

The cooling discharge air setpoint is approximately 54°F (12°C).

Refer to Installation and Operation Manual for additional information.

Z2000 SYSTEM WIRING AND LAYOUT GUIDE



RUSKIN®

3900 Dr. Greaves Rd.
Kansas City, MO 64030
(816) 761-7476
FAX (816) 765-8955
www.ruskin.com