

Instructions for Field Adjustment of Cooling Discharge Air Control on Reznor Models PCCA, PCDA, AHCA, and AHDA equipped with Johnson Controls Model MS4 Multi-Stage Electronic Temperature Control

WARNING: Risk of Electrical Shock - To avoid possible electrical shock or equipment damage, disconnect power supply before making electrical connections.

IMPORTANT: The Johnson Controls Model MS4 control is designed for use only as an operating control. Where an operating control failure would result in personal injury or loss of property, it is the responsibility of the installer to add devices (safety, limit controls) or systems (alarm, supervisory systems) that provide protection from or warning of control failure.

Application/Setpoint Adjustment

When applied to Reznor Models, the Model MS4 control is factory set in "d" Mode. The control senses discharge air temperature and is factory programmed to control cooling or cooling/dehumidification operation.

The field adjustable setpoint is the "OFF" setpoint of the 1st stage of cooling (setpoint at which cooling is disabled). The minimum setpoint is 50°F (10°C).

Factory-programmed setpoints:

Models	Setpoint Type	Total Stages of Cooling	
		1 or 2	3
PCCA, PCDA, AHCA*, and AHDA*	Cooling OFF	52°F	51°F
PCDA and AHDA*	Reheat**	67°F	66°F

* Models AHCA and AHDA with Option BN10 or BN11 are equipped with J/C MS4 multi-stage temperature control.
 **Model PCDA and AHDA reheat setpoints are programmed for an automatic 15 degree differential from the cooling setpoints [Example: Reheat Setpoint (67°F) = Cooling Setpoint (52°F) plus 15 degrees]. When the cooling setpoint is manually adjusted, the reheat setpoint will automatically adjust.

Models PCDA and AHDA include a dedicated dehumidifier which is enabled based on outdoor enthalpy. The cooling mode in all models is enabled based on an outdoor dry bulb temperature changeover control.

Follow the instructions below to adjust the 1st stage cooling OFF setpoint (instructions apply to all models unless noted otherwise).

- Models PCDA and AHDA *only* - Check to see if there are wires connected to Terminals D and CD on the controller. If the terminals are empty, place a field-supplied jumper between Terminals D and CD.
- Hold the ENTER button down for three seconds. When the display changes to show the **cooling setpoint**, release the ENTER button.
- Immediately press the UP or DOWN button until the desired **cooling setpoint** is displayed.
- Press the ENTER button to save the new setpoint.
NOTE: Be sure to press the ENTER button while the desired setpoint is displayed. If you do not press the ENTER button, the new setpoint is not saved and the control reverts to the old setpoint.
- Models PCDA and AHDA - If a jumper wire connecting Terminals D and CD was installed in Step 1, remove it.

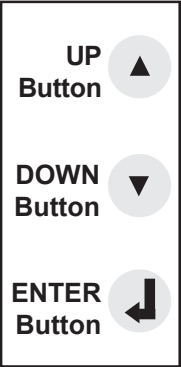
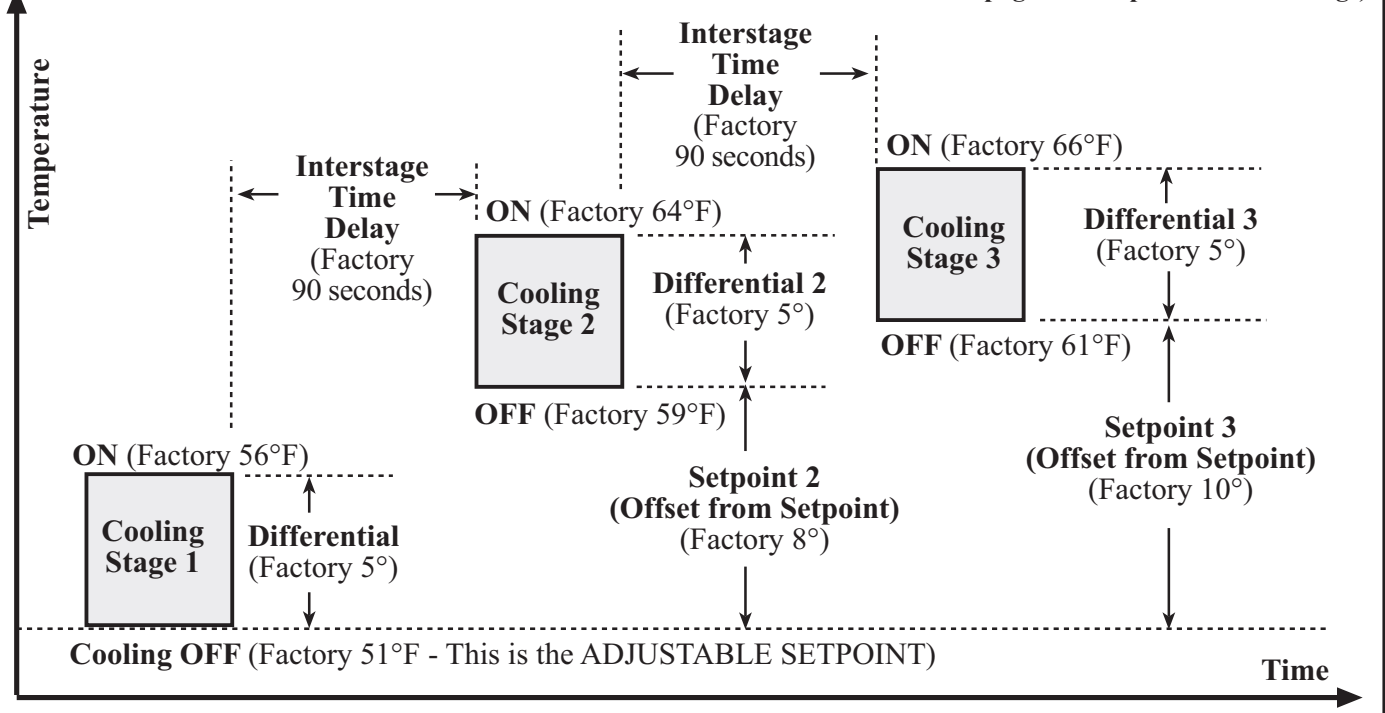


Figure 1 - Example showing 3-Stage Cooling Control (Reznor factory settings are in parenthesis; refer to the table on page 2 for explanation of settings)



Johnson Controls Model MS4 Factory Settings

The default settings of the Model MS4 controller are programmed at the factory for proper control of Reznor cooling Models PCCA and AHCA and cooling/dehumidifying Models PCDA and AHDA. **Adjustment of settings other than cooling discharge setpoint (instructions on page 1) is not recommended.** Discharge cooling settings below 50°F (10°C) may result in frost on the evaporator and are not recommended.

The table below shows the factory settings. These settings are shown for your information in evaluating your application. Contact the factory before changing any of these programmed settings. On a Model PCCA or PCDA, tampering with these settings will void compressor warranty.

Control Display	Setting	Description	Setting Ranges	REZNOR Factory Setting
H1	Differential (Hysteresis)	Temperature difference relative to setpoint of offset at which the load is switched ON or OFF	1 to 9°	3rd Stage 5° 1st and 2nd Stage 6°
S2	Setpoint 2 (Offset)	Difference between setpoint and Stage 2	1 to 40°	3rd Stage 8° 2nd Stage 10°
H2	Differential 2 (Hysteresis)	See H1 above	1 to 9°	3rd Stage 5° 2nd Stage 6°
S3	Setpoint 3 (Offset)	Difference between setpoint and Stage 3	1 to 40°	3rd Stage 10° 2nd Stage 12°
H3	Differential 3 (Hysteresis)	See H1 above	1 to 9°	3rd Stage 5°
S4	Setpoint 4 (Offset)	Difference between setpoint and Stage 4	1 to 40°	13°
H4	Differential 4 (Hysteresis)	See H1 above	1 to 9°	5°
LL	Low Limit	Lower limit of end-user setpoint adjustment	-40°F (-40°C) to HL	50°F
HL	High Limit	Upper limit of end-user setpoint adjustment	LL to 99°F (70°C)	90°F
Cc	Anti-short Cycle Timer, Cool	Time delay between equipment On cycles for cooling stages	0 to 9 minutes	5 minutes
CH	Anti-short Cycle Timer, Heat	Time delay between equipment On cycles for heating stages	0 to 9 minutes	0 minutes
rt	Soft Start	Rate at which the process temperature approaches the setpoint	0 to 99 minutes/degrees	0 minutes
AH	High Temperature Alarm	High temperature alarm setpoint relative to main setpoint	0 to 50° above setpoint	50°
AL	Low Temperature Alarm	Low temperature alarm setpoint relative to main setpoint	0 to 50° below setpoint	20°
Ad	Alarm Differential	Temperature difference relative to high and low alarms at which alarm output is switched Off	1 to 9°	5°
At	Alarm Time Delay	Delay between alarm detection and activation	0 to 99 minutes	15 minutes
So	Sensor Offset	Compensate for long sensor leads to sensor location	-20° to +20°	0°
Un	Units Used	Temperature units used	0 = °C; 1 = °F	1
PU	Display Refresh Rate	Time delay between display refreshes	1 to 99 seconds	1 second
IF	Binary Input Function	Configuration for normally closed binary input	0 = No binary input 1 = Shutoff/alarm signaling 2 = Setback 3 = Remote shutoff	PCCA and AHCA = 0 ; PCDA and AHDA = 2
Sb	Setback	Value of setpoint shift when binary input is open and IF = 2	0 to 20°	15°
Id	Binary Input Time Delay	Time between binary input detection and enabling of IF	0 to 99 minutes	3 minutes
iS	Interstage Time Delay	Minimum amount of time between two successive stages	3 to 90 seconds	90 seconds