GENERAL

Rickard Diffusers can be fitted with Supply Air Sensors to measure the Temperature of the air supplied from the Air Handling Unit.

Rickard Controls Algorithm will ensure cooling and heating of the occupied space is maximized depending on the temperature of supply air.

The sensor is also called a Change-over sensor, since it can change the direction of control disc operation to maximize cooling or heating performance.

OPERATION

There are four Change Over modes that can be selected:

Default: Change between cold and hot supply mode when Supply Air reaches Room temp +/- 1°C band.

At Setpoint: Change between cold and hot supply mode when Supply Air reaches Setpoint +/- 1°C band.

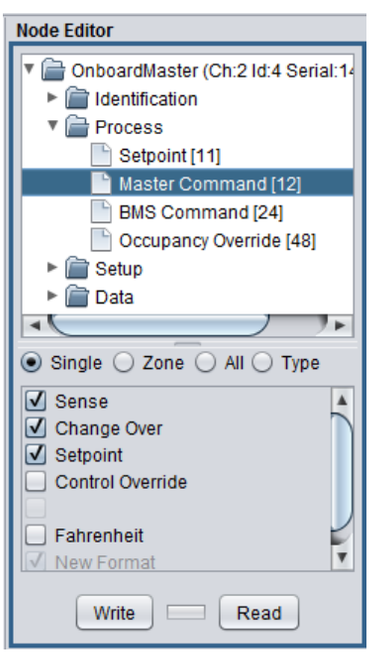
At Fixed Value: Change between cold and hot supply mode when Supply Air reaches the Fixed Value chosen +/- 1°C band.

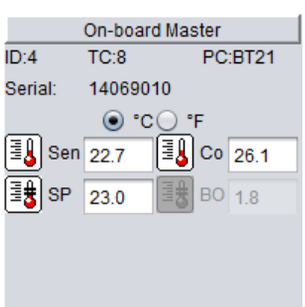
Heater Control: Change between cold and hot supply mode when Supply Air reaches the Fixed Value chosen +/- 1°C band.

The diffuser will keep the heater on even when the control disc opens towards fully open.

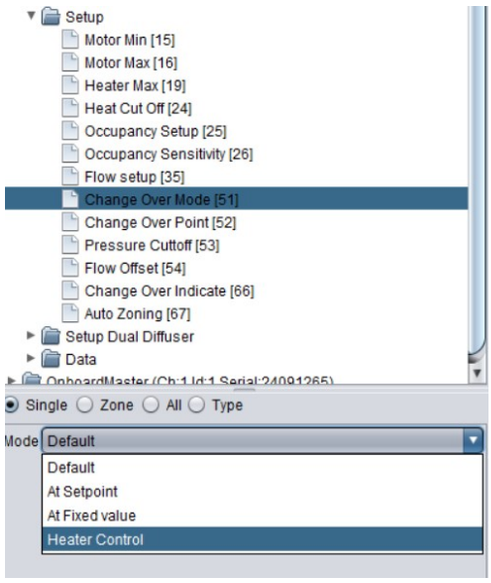
SETTINGS

Activate Change Over functionality under the OnBoardMaster/ Process/Master Command tag. When selected, the CO sensor value will be displayed in bold. **ONLY ACTIVATE ON ONE MASTER PER ZONE**

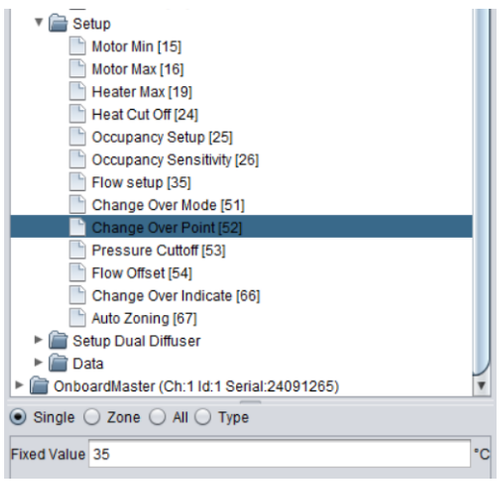




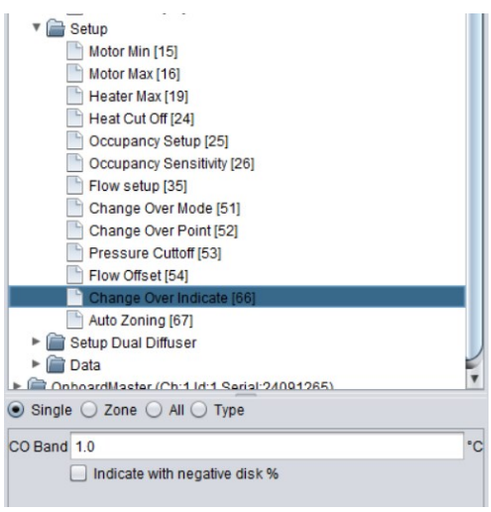
Activate Change Over mode under the Diffuser/Setup/Change Over Mode tag.



Enter Fixed Value Change Over Point under the Diffuser/Setup/ Change Over Point tag.



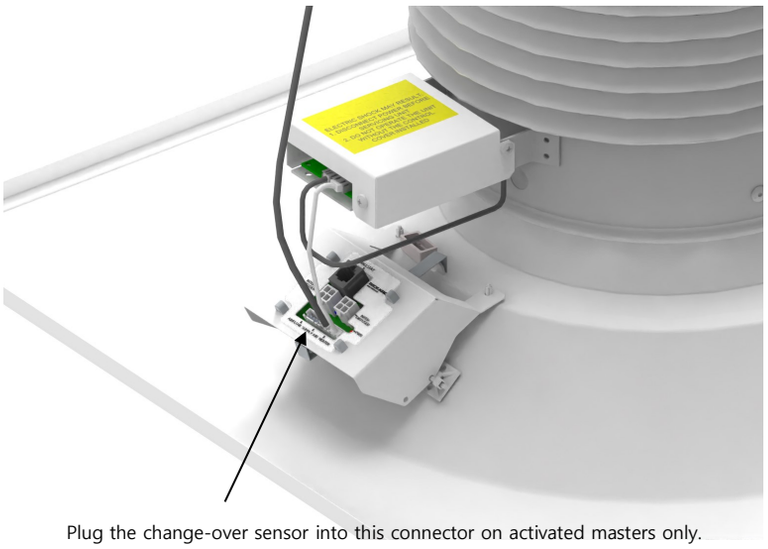
Changeover Band can be modified under the Diffuser/Setup/Change Over Indicate tag.



INSTALLATION

Converting a standard RICKARD master diffuser to incorporate changeover functionality is as simple as plugging in the supply air/ changeover temperature sensor and activating it using the software. Every master controller is pre-activated. This temperature sensor must be fitted in such a way that it senses the primary air temperature being supplied to the diffuser.

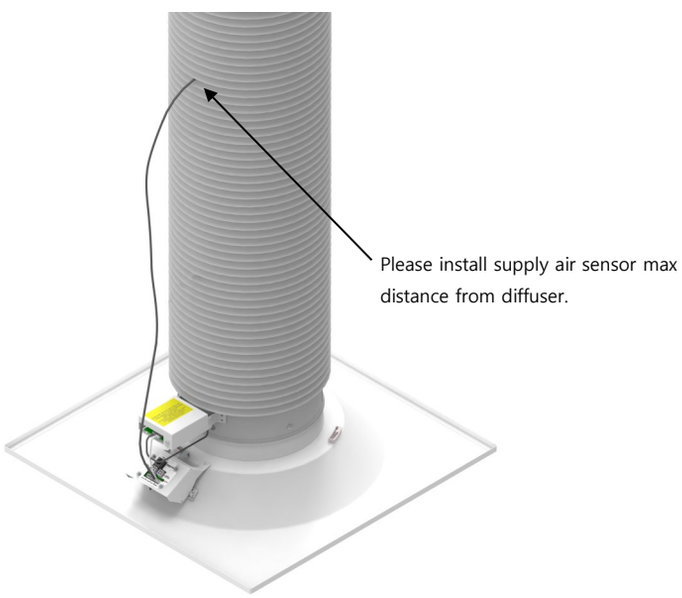
NOTE: Slave diffusers receive a control signal from the master diffuser and therefore do not require nor should they be fitted with a changeover sensor. It is also important that a slaves changeover sensing is turned off on the MLM application. Failure to do so will result in a zone not operating correctly. Only one changeover sensor should be activated per zone i.e. the master.



Plug the change-over sensor into this connector on activated masters only.

VCD1 Shown. Use the same connector on other models.

If a re-heater is fitted to the neck of the diffuser, care must be taken to ensure that, the changeover sensor is installed in such a way that it is not affected by radiant heat from the heater. Every changeover sensor is labeled "Please install supply air sensor max distance from diffuser" to ensure this.



VCD1 Shown. Always locate sensor away from heater when fitting to other models.

The controller compares the primary air and room temperature. Whenever the supply air temperature exceeds the room temperature by one degree Celsius, the control action is reversed and switches to heating mode. Cooling mode is re-instated when the primary air temperature falls one degree Celsius below room temperature.

ENERGY EFFICIENCY

Should a VAV air diffusion unit be fitted with a re-heater, the heater will be proportionally energized between 0.5°C and 1.5°C below set-point temperature, regardless of which mode the controller is in. Effectively, a re-heater will only be energized at Minimum Supply Air Status when cold air is supplied from the AHU and at Maximum Supply Air Status when in Heating Change Over mode. This control logic is extremely energy efficient from a Green Building perspective.