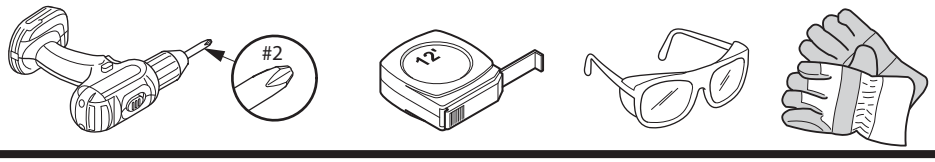
Global IFS Underfloor Air System
Installation Instruction



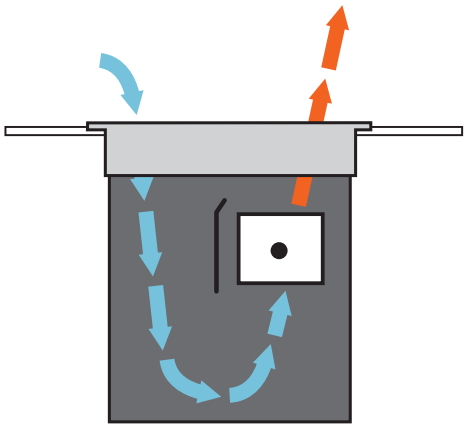
Perimeter Natural Convection Terminal (PNT)

PRODUCT OVERVIEW

PNT

The PNT is designed to deliver heating in perimeter by heating room air through a natural convection process. The PNT has integrated hot water coils or electric coil configurations available. In heating mode, the heater is turned on and the cooler room air at the floor level is pulled into plenum, heated as it flows through the coil, then allowed to rise into the room through the buoyancy of the warm air.

PNT ▼



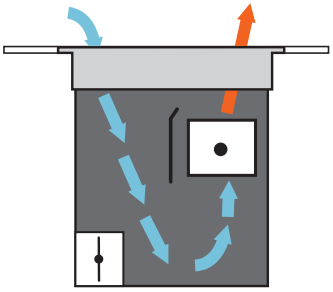
PNT heating only airfflow pattern

PNT with Air Valve

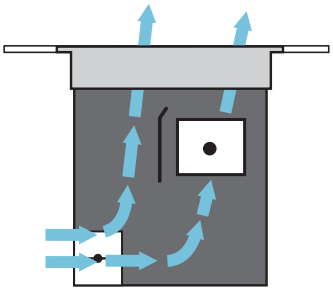
The PNT with VAV damper uses the damper to supply cool plenum air. When the occupied zone is above the setpoint, the controller sends a signal to the PNT to modulate the damper open to a position dependant on the cooling load. The PNT has integrated hot water coils or electric coil configurations available for heating. In heating mode, the damper is at minimum position and the electric coil or hot water coil is activated. The cool air at the floor level is pulled into the grille then allowed to rise into the room through the buoyancy of the warm air.

NOTE: Covering the grille and blocking the airflow of any PNT product is a fire hazard.

PNT WITH AIR VALVE ▼



PNT airflow pattern in heating mode

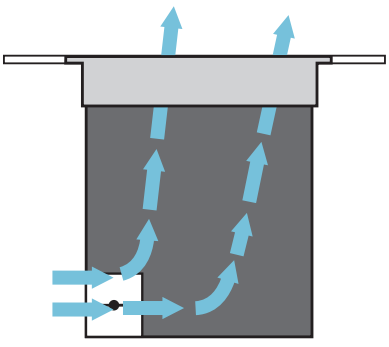


PNT airflow pattern in cooling mode

PNT Cooling Only

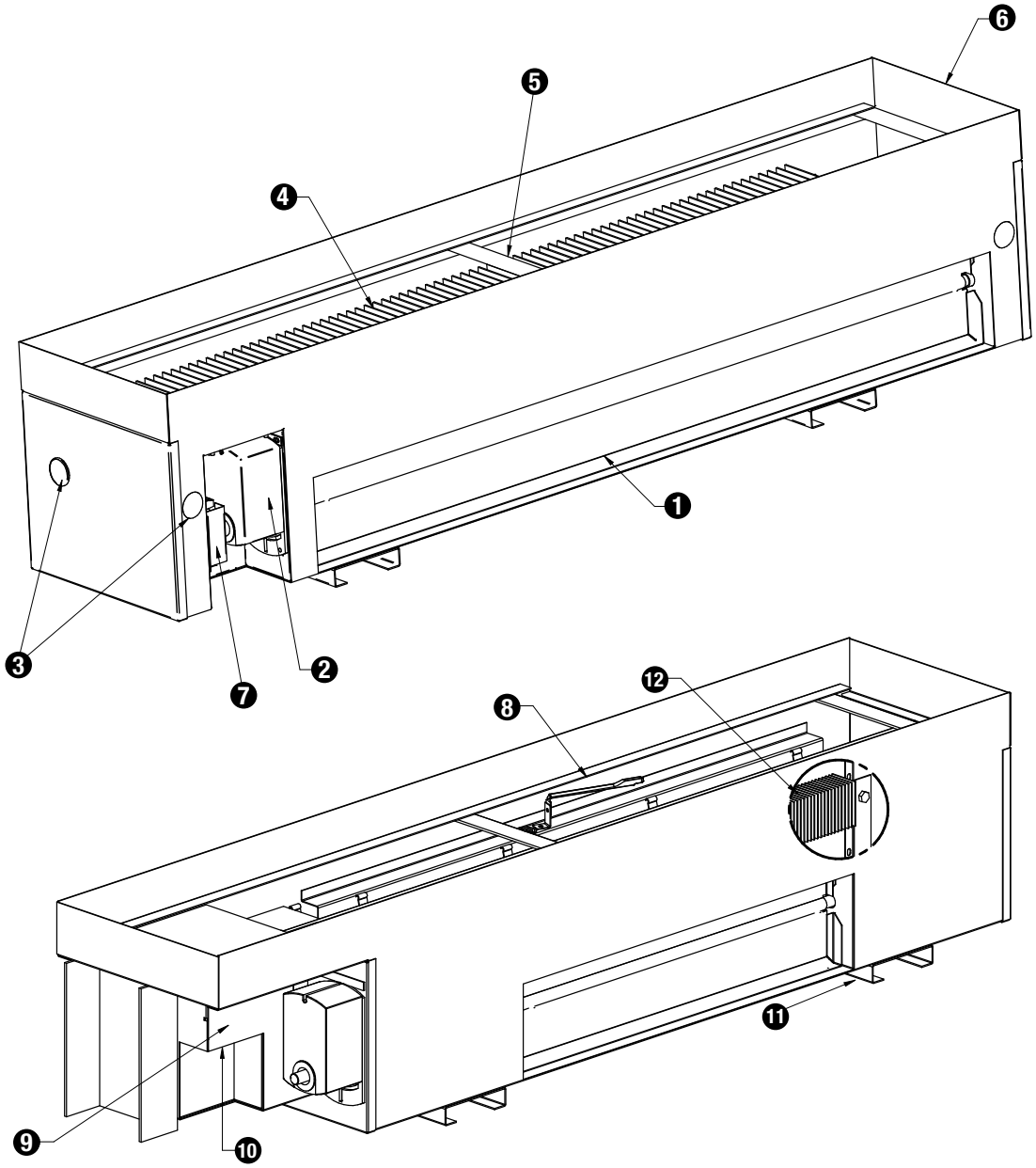
The PNT cooling only has a VAV damper which it uses to supply cool plenum air into the occupied space. The cooling only PNT has no chilled water coil or electric coil.

PNT COOLING ONLY ▼



PNT airflow pattern in cooling mode

PNT PARTS AND FEATURE LIST



No.	Feature	No.	Feature
1	Air Valve (OPT)	7	Plug and Play Board
2	Damper Actuator	8	DAT Probe (OPT)
3	Piping Knockouts	9	SCR/Staged Heat Enclosure
4	Fintube Water Coil	10	High Voltage Quick Connect Receptacles (OPT)
5	Handle Bars (Removeable)	11	Pedestal Brackets (OPT)
6	Removeable Endcaps	12	Electric Coils

Floor Tile Supported Installation

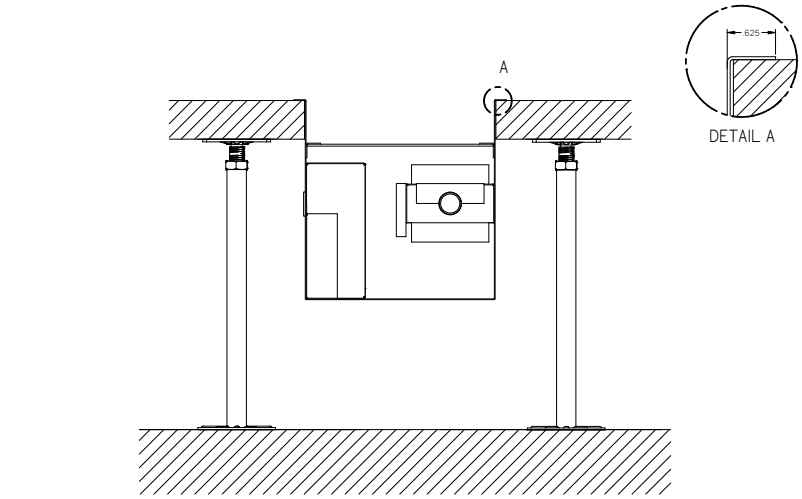
1. The floor opening should be the same size as the nominal opening size used to order the floor plenum. See submittal for reference Optional: Install mounting angle (by others) along the perimeter wall. Angle should be installed at same height as finished floor. Install the first row of floor tiles maintaining the rough opening width
2. Connect M-Cable Purple cable, if installing the cooling only PNT, use M-Cable Green cable. Remove necessary knockouts for piping
3. Install plenum into floor opening with support flange resting above the tile. If plenum includes coil ensure coil is located on perimeter side or if air valve is installed ensure air valve is on roomside Optional: For pedestals, install pedestal by sliding the pedestal head into the pedestal bracket before installing setting plenum in floor opening. Ensure unit is level by adjusting pedestal heights.
4. Connect HW piping connections.

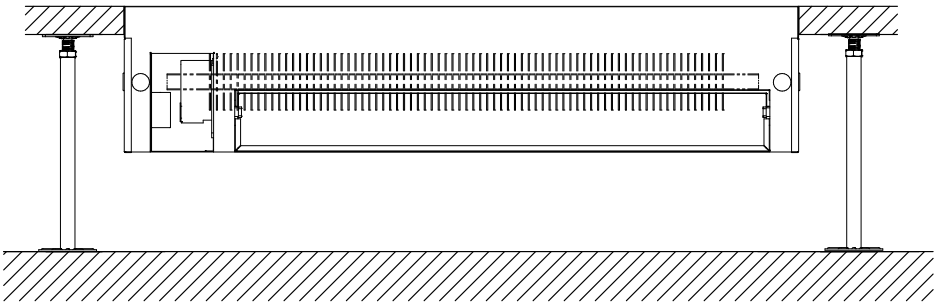
NOTE: No piping required for cooling only PNT.

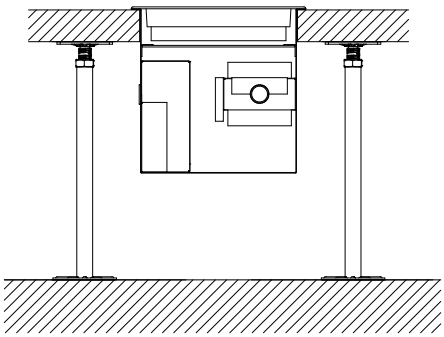
5. Install 3/4" thick Gasket between PNT plenum and tile.
6. Install LBG bar grille into plenum.

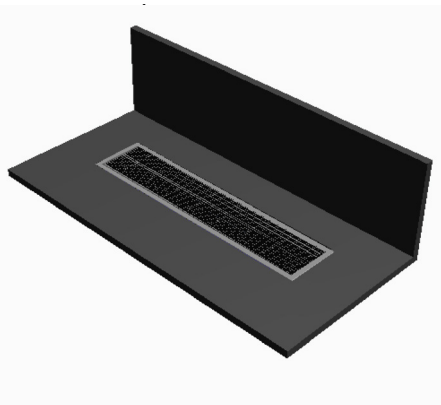
NOTE: PNT units should be placed so that wall thermostats are not in direct path of the airflow.

FLOOR TILE SUPPORTED PLENUM CONFIGURATION ▼







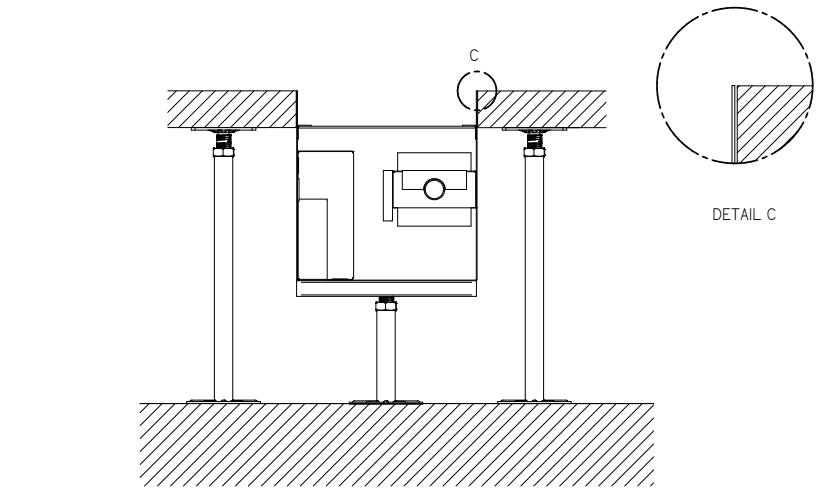


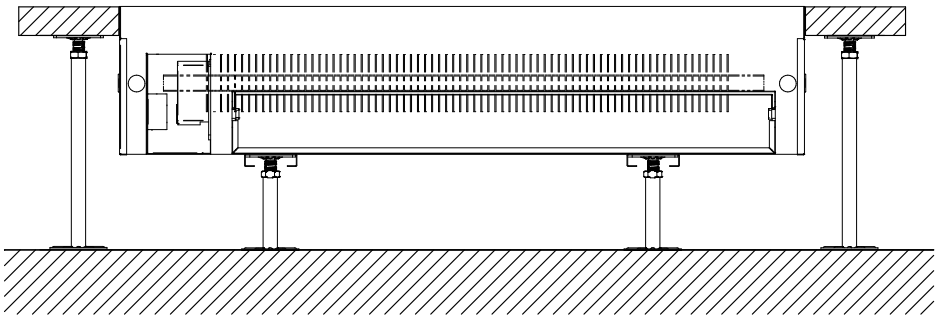
Flangeless Plenum Installation

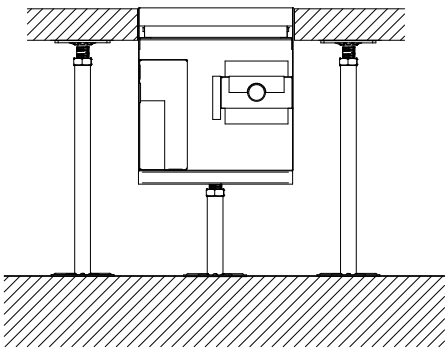
1. Install pedestal (supplied by others) by sliding the pedestal head through the slot in the pedestal brackets. Optional: For continuous applications, remove end-cap and follow instructions in the TBO manual for blank-off installation
2. Install plenum with installed pedestals in floor opening. Secure pedestal to slab and adjust pedestal heights to level plenum **NOTE:** For units with a coil, ensure coil is located closest to perimeter. For units with air valve, located air valve on room side
3. Connect Purple M-Cable, if installing the cooling only PNT use Green M-cable. Remove necessary knockouts for piping
4. Connect HW piping connections Note: No piping required for PNT for cooling only
5. Install floor tiles, making sure plenum is level with finished floor
6. Install LBG floor grille into the plenum.

NOTE: PNT units should be placed so that wall thermostats are not in direct path of the airflow.

FLANGELESS PLENUM CONFIGURATION ▼

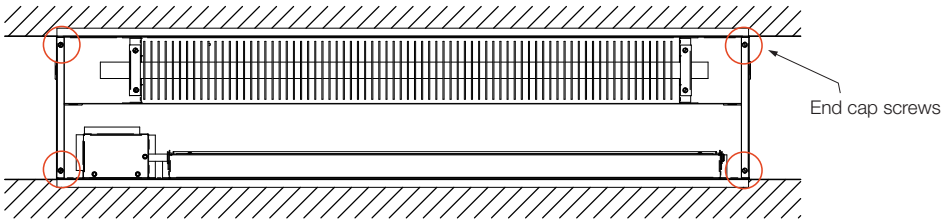


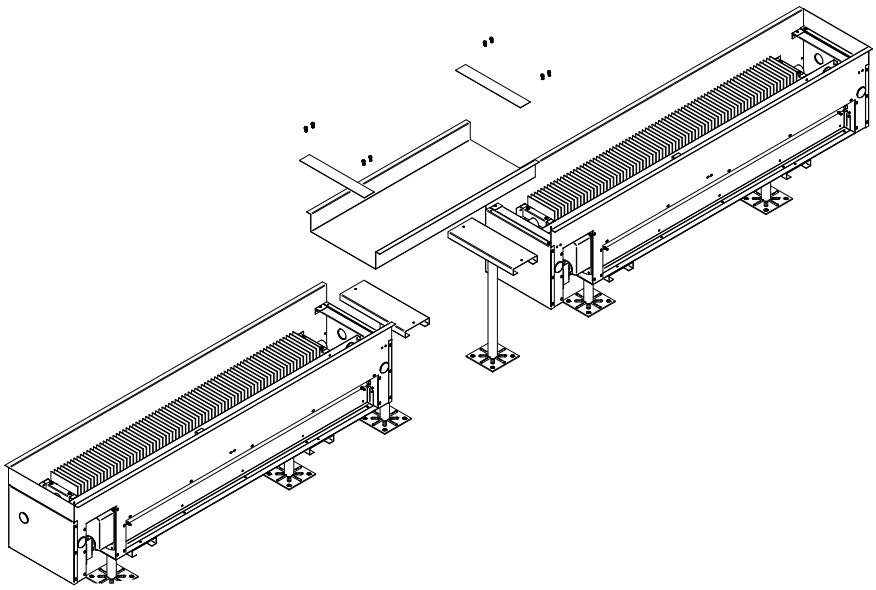




Continuous Grille Installation

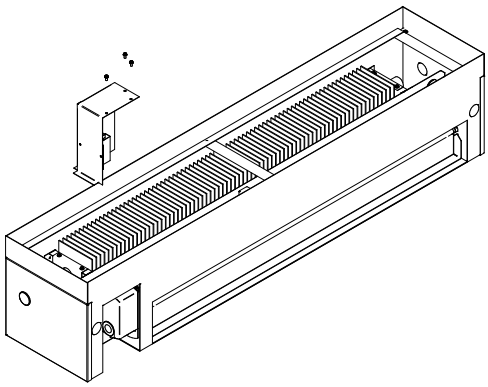
1. Remove endcaps by removing screws securing the endcaps to the plenum.
2. Cut blank offs (TBO) to required lengths and install with connector plates as shown (see TBO installation manual for more detail)
3. Seal all joints to prevent underfloor plenum leakage into the space . Install LBG grille (ordered separately)
4. Install LBG grille (ordered separately). For continuous grille installation please see LBG install manual.





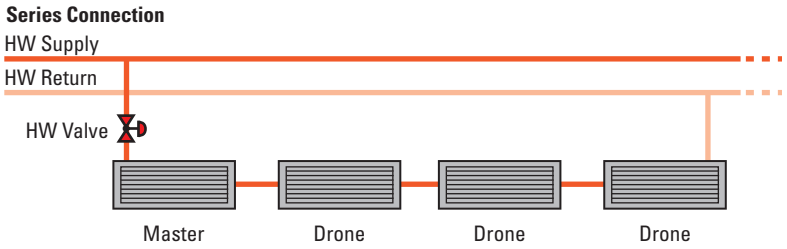
Accessing Actuator from roomside

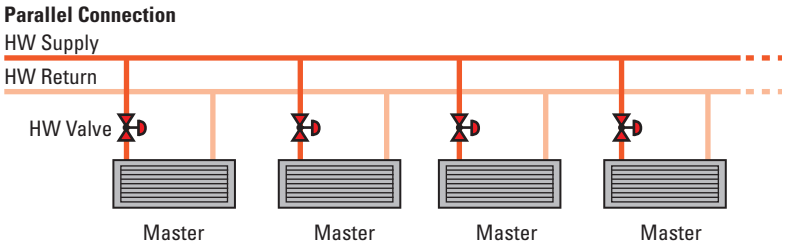
1. Remove LBG grille
2. Remove three screws holding actuator cover
3. Remove actuator cover by sliding upwards. Be cautious when removing actuator cover to ensure wiring to plug and play wiring is not disconnected



Piping Multiple Units

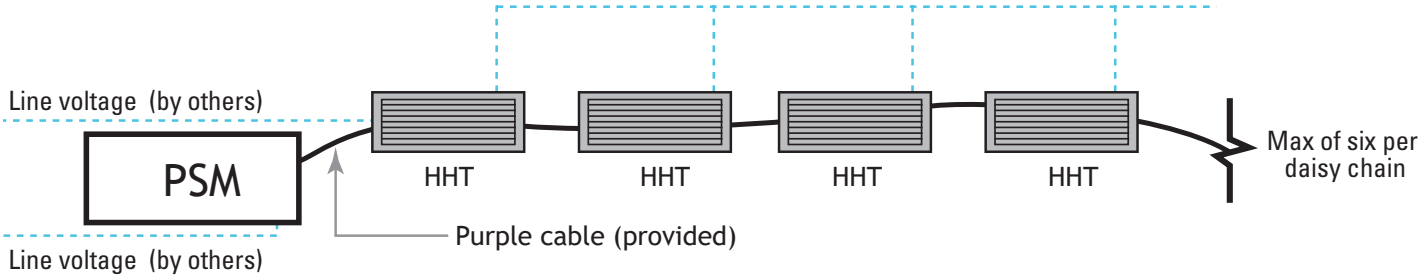
The PNT can be connected to meet room design requirements. Only hot water versions of PNT may be connected in this fashion. One master unit is required for each zone and up to 3 additional drone units can be connected to a master. This advantage of using this master/ drone arrangement is a significant cost savings in control hardware. Each drone unit is piped in series with the master unit so that all fluid flow is controlled by a single water valve.





Control sequence

HHT ELECTRIC COIL EXAMPLE SETUP ▼

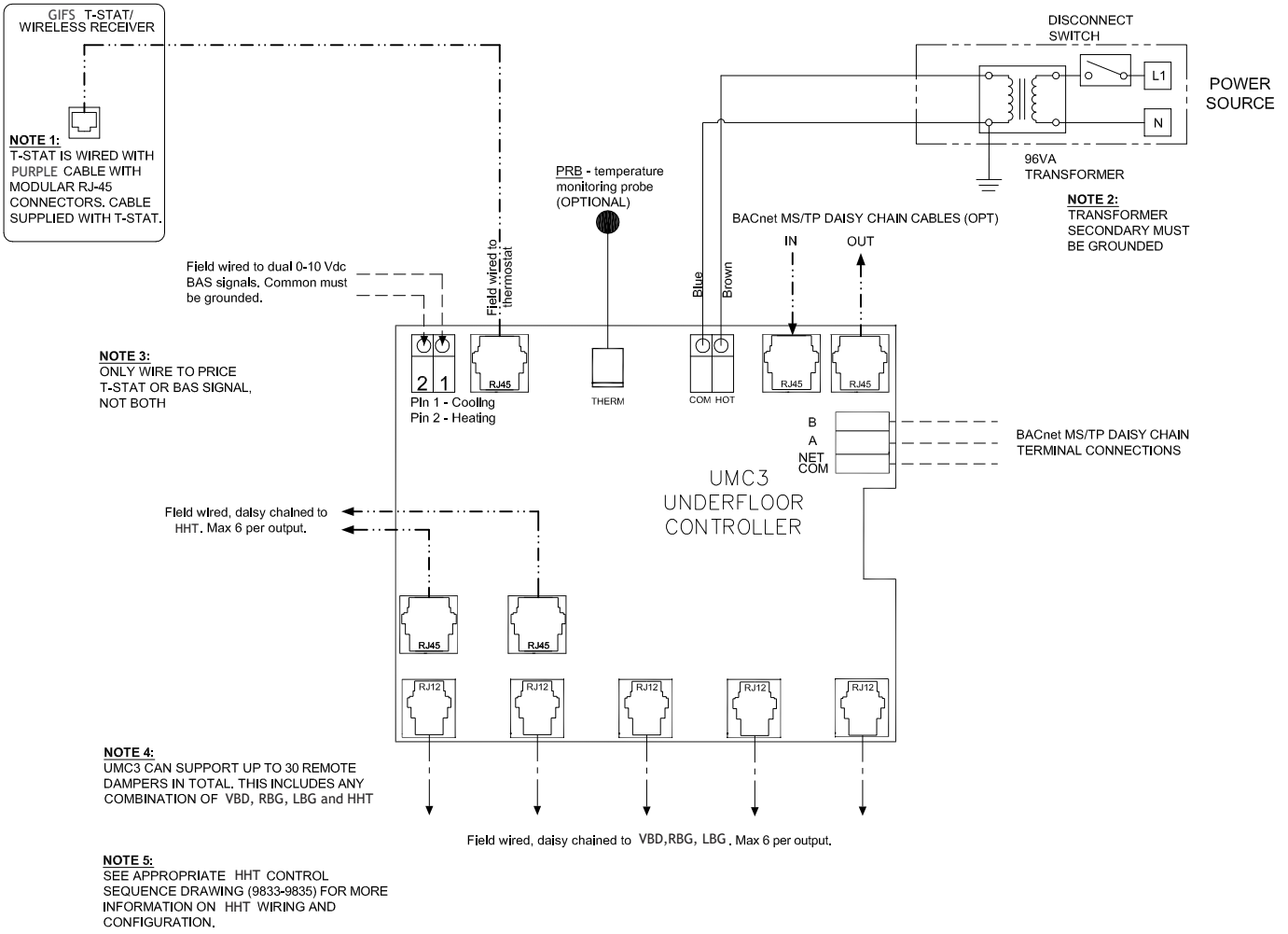


Electric Heater

The integral electric heater will operate in an on / off (binary) mode. When the incoming signal threshold is reached, the relay will fire and the electric coil will be turned fully on.

NOTE: The DIP switches will be factory set. and should not be changed.

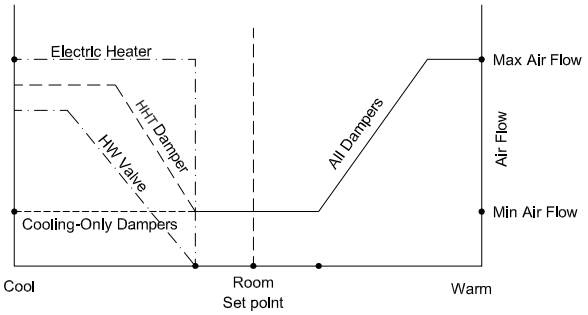
HHT ELECTRIC COIL EXAMPLE SETUP



LEGEND

- PURPLE 25' PLENUM CABLE
- PURPLE 35' PLENUM CABLE
- FACTORY ELECTRICAL WIRING
- FIELD ELECTRICAL WIRING

CONTROL GRAPH



Sequence of Operation -- Variable Cooling (VBD, RBG, LBG); Variable Heating (HHT)

Cooling: When the room temperature increases above the room set point, all floor diffuser dampers modulate between the preselected minimum and maximum positions to meet room demand.

Heating: When the room temperature decreases below the room set point, the cooling-only diffuser dampers (VBD, RBG, LBG) remain at the preselected minimum position. The **HHT** dampers modulate between preselected minimum and maximum positions to allow air to flow across the heating coil. The **HHT** either activates the electic heater or modulates the hot water valve to provide warm air to the space.