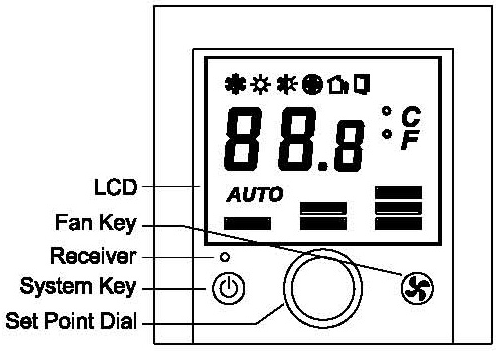
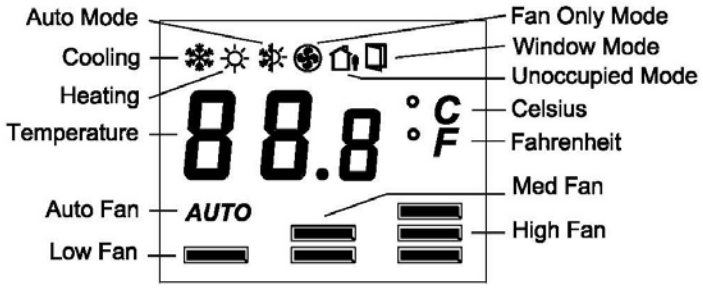
Revision Date November 6, 2012

Digital Room Thermostats with LCD

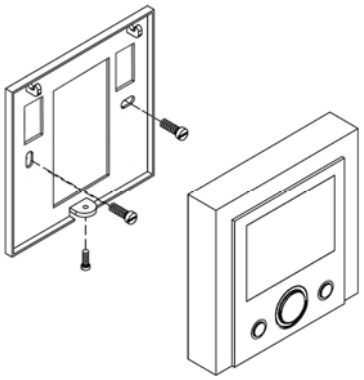
Installation and Operation Instructions

Display Control Unit and LCD Layout





DCU Mounting Details



Mounting

The display control unit can be surface mounted or secured to a standard European 75 x 75 x 35 mm electrical box. Two mounting screws for the Display Control Unit only are included.

Fan Operation

A fan-speed control touch key allows control of a 3-speed fan. The speed control key has 4 positions: “Hi-Med-Low-Auto”. In the “Hi”, “Med” or “low” position, the fan runs continuously at the selected speed. In the “Auto” mode, the fan speed is temperature dependent and controlled automatically in 2 K differential increments from low to high speed.

Other Operation Notes

- LCD shows ambient temperature constantly except when set point adjustment is being made.
- Press the system key Φ to enter into the desired operating mode: Cool-Heat-Auto-Fan Only-Off, etc.
- Press the fan key ✱ to change the fan speed mode: High-Med-Low-Auto.
- Increase or decrease temperature set point in 0.5 K increments by rotating the adjustment dial clockwise or counter-clockwise. During the dial rotation, the LCD shows the existing set point value.
- When the unoccupied contact closes, it will override the operating mode and operate the thermostat in energy saving mode despite the thermostat being in operating or standby mode.
- In unoccupied mode, the factory-set temperature cut-in points are 26 ^{o}C for cooling and 16 ^{o}C for heating. Meanwhile, the operation of all operation keys are locked out until the unoccupied contact opens.
- During unoccupied mode, the default fan speed is set at “low” when pre-set cut-in temperature is reached, or otherwise the fan output is always “off”.
- Unoccupied mode can be activated in the following manner when the unoccupied contact closes:
  For 2-pipe models with auto seasonal changeover, the unoccupied cooling or heating mode is determined by the status of the SR2 seasonal changeover sensor and the valve output is activated according to the measured temperature.
  For 2-pipe models with manual seasonal changeover, the unoccupied cooling or heating status is determined by the last status of the occupied mode and the valve output is controlled according to the measured temperature.
  For 4-pipe models, the unoccupied cooling or heating mode is always determined by the measured temperature and valve output is also activated according to the measured temperature.
  When unoccupied mode is activated, all keys are locked out and no setting values can be entered.
- When the window contact is closed, the window function enabled mode is activated and locks out all thermostat functions and displays the window icon on the LCD. This function has a higher priority than the unoccupied mode.

Thermostat Errors Reporting

When the following errors are reported on the LED display unit, these errors will prevent the thermostat from normal operation and all thermostat functions will be locked out:

E-1 EEPROM read/write error
E-2* Temperature sensor open-circuited
E-3 Temperature sensor short-circuited

* If jumper JP1 is cut open and external sensor is used, E-2 means the external sensor may have been disconnected from Terminals SR1 and GND. Check the external sensor’s connectivity and resistive value. If E-2 error is still reported, return the thermostat to the manufacturer for repair.

When the error E-1 or E-3 is reported or when the error E-2 is reported without jumper JP1 being cut and external sensor being installed, return the thermostat to the manufacturer for repair.

Trouble-Shooting

Before trouble-shooting starts, ensure that the voltage output from Terminals 1 (GND) and 2 (+5 Vdc) on the power supply unit is between 5 Vdc and 5.25 Vdc and not higher. Higher voltage may damage the internal circuitry and components of the display control unit.

When abnormal power voltages are found, return the thermostat to the manufacturer for repair.

When there is no 5 Vdc power output, check the line voltage power and its 5 A fuse.

Wiring Diagram

The thermostats consist of two basic units: the Display Control Unit (DCU) and the Power Supply Unit (PSU). While all line-voltage wiring is terminated at the PSU, all connections between the DCU and PSU are of low-voltage signaling wires.

Wiring and Application Notes

- Cut jumper JP1 open if external sensor is wired to SR1 and GND. Run the wiring away from any electrical motors or power wiring. Failure to do so may result in poor thermostat performance due to electrical noise.
- 22 or 24 AWG twisted shielded pair double-insulated cable is recommended as remote sensor wiring and its length must not exceed 25 m.
- Connecting wires between Display Control Unit and Power Supply Unit must not exceed 15 m.
- Do not bundle and run power wiring and remote sensor wiring in the same conduit.
- When an individual TE10-1 sensor is employed in each thermostat, the seasonal changeover sensor should be wrapped around the supply water pipe when associated with a water system. When the changeover sensor temperature exceeds 30ºC, the thermostat enters into heating mode.
- Seasonal changeover sensor or switch is applicable to cool only or heat only 2-pipe models only.
- Unoccupied contact closure activates unoccupied mode.
- Window contact closure activates thermostat lockout mode.
- The thermostat outputs are designed for controlling zone valves. If used for controlling electric heaters, external contactors must be used.

Piping Notes:

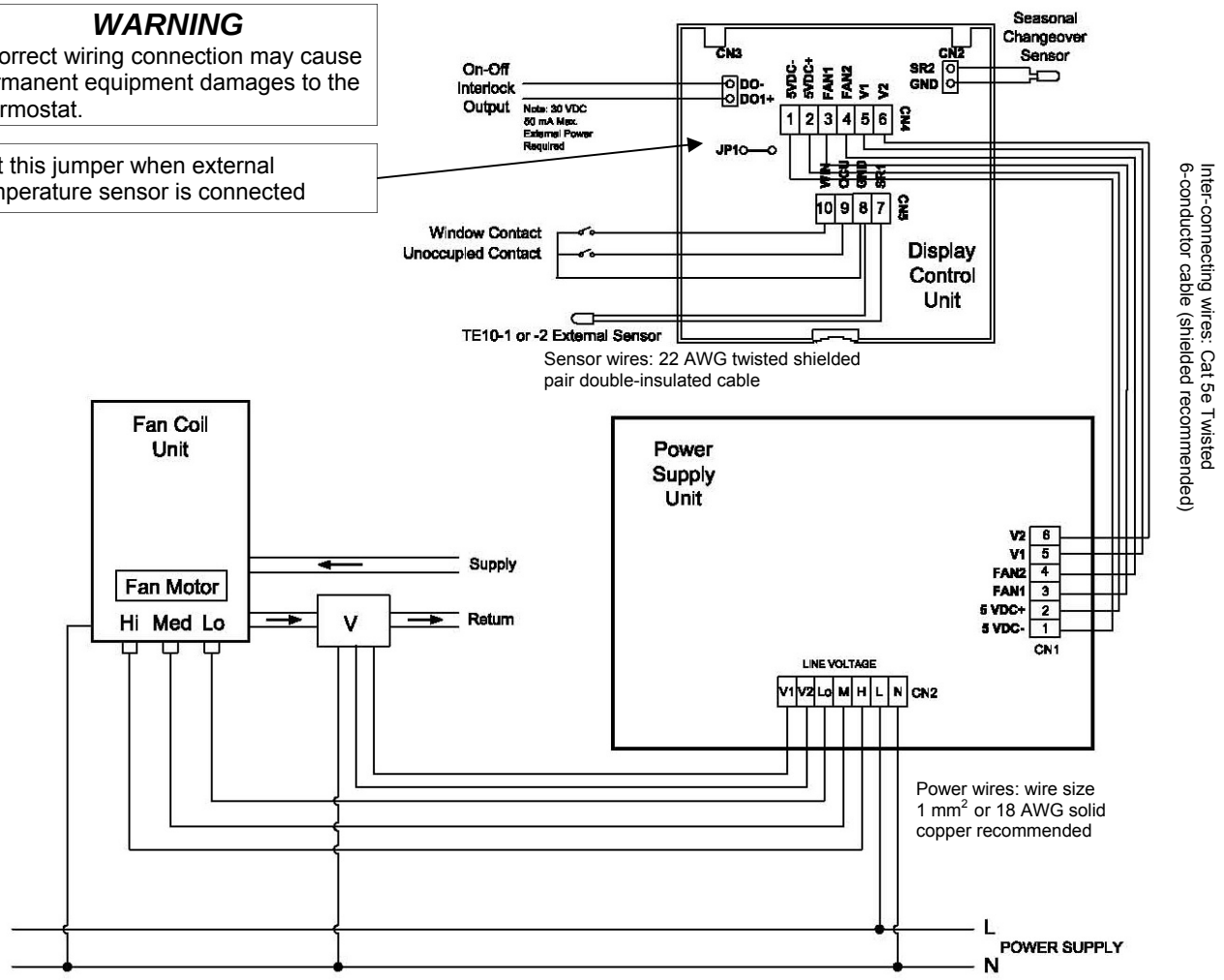
1. V must be a line-voltage or 24 VAC 3-wire floating valve.
2. In cooling mode, V1 output opens valve on temperature rise and V2 output closes valve on temperature drop. The action in heating mode is reversed.

Wiring Diagram for Line-Voltage Fan and Single Line-Voltage 3-Wire Floating Valve Output

WARNING

Incorrect wiring connection may cause permanent equipment damages to the thermostat.

Cut this jumper when external temperature sensor is connected



Wiring Diagram for Line-Voltage Fan and Single 24 VAC 3-Wire Floating Valve Output

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