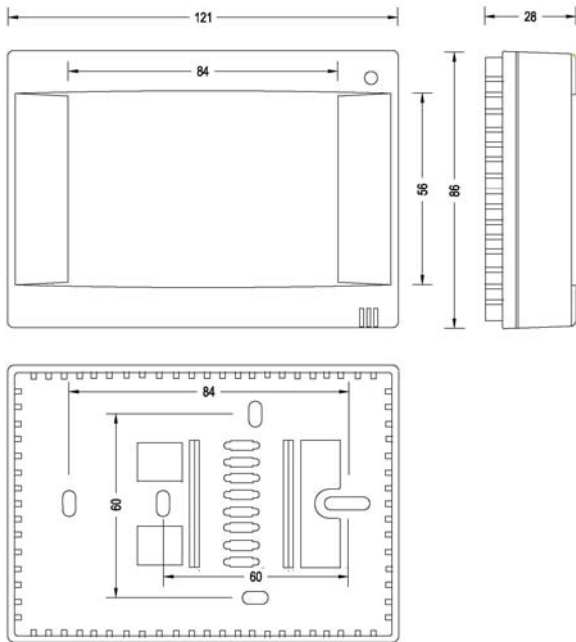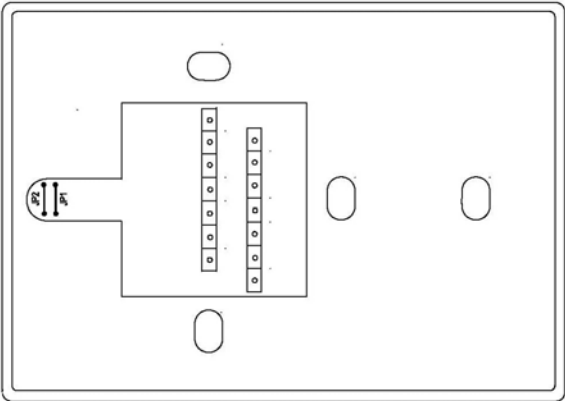**PI Temperature Controllers with LCD and Touch Screen**

Installation and Operation Instructions

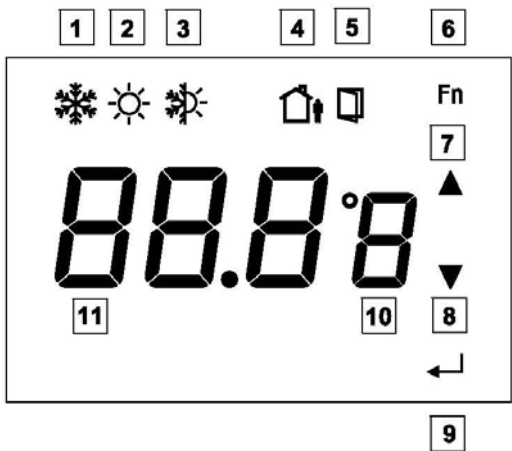## Dimensions in mm

Jumper Locations and Settings

| JUMPER SETTINGS		
	JUMPER IN OPEN POSITION	JUMPER IN CLOSED POSITION
JP1	With External Sensor	With Built-in Sensor
JP2	For 2-10 VDC Output	For 0-10 VDC Output
Note: JP2 is available in 0-10 VDC/2-10 VDC output models only. Factory setting is 0-10 VDC.		

Touch screen and LCD Layout

Display icons: 1, 2, 3, 4, 5, 10 and 11
Operating icons: 6, 7, 8 and 9

1   Cooling mode
2   Heating mode
3   Auto cooling/heating mode
4   Unoccupied mode
5   Window mode
6   Function touch icon
7   Temperature set point value increase touch icon (+)
8   Temperature set point value decrease touch icon (-)
9   Enter touch icon
10 ºC or ºF indication
11 Temperature indication

Mounting Details
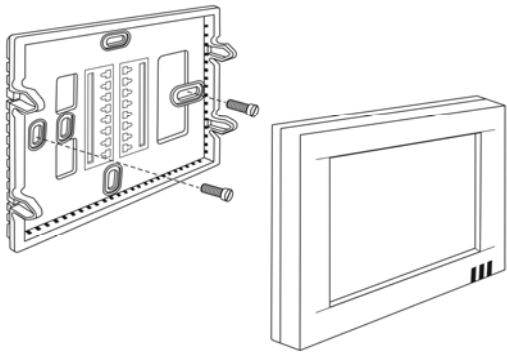
Mounting

The temperature controller can be surface mounted or secured to a standard American 2"x 4" single gang box or a standard European 75 x 75 x 35 mm electrical box. Two M3.5 mounting screws are included.

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 controller 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.

Application Notes

- On a single-output cool only or heat only unit, i.e. a unit with only main output being available, connecting a shunting wire between terminals SR2 and GND forces the unit to go into heating mode.
- On a single-output cool only or heat only unit, connecting a TE10-1 changeover sensor between terminals SR2 and GND will automatically switch the unit between cooling and heating mode. When the sensor temperature exceeds 30ºC, the controller enters into heating mode.
- On a dual-output unit, the main output is always associated with the cooling controlled device and the secondary output with the heating controlled device.
- Cut open jumper JP1 if external sensor is wired to SR1 and GND.
- Cut open jumper JP2 if 2-10 VDC proportional output is required.
- The changeover sensor should be wrapped around the supply water pipe when associated with a water system.
- 22 or 24 AWG twisted shielded pair double-insulated cable is recommended as remote sensor wiring and its length must not exceed 25 m.
- Do not bundle and run power wiring and remote sensor wiring in the same conduit.
- Unoccupied contact closure activates unoccupied mode.
- When using either or both of the external and seasonal changeover temperature sensors, run the wires away from any electric motors or power wiring. Failure to do so may result in poor thermostat performance due to electrical noise.
- It is highly recommended that the 24 VAC power supply is interlocked to the air-conditioning system so that the controller is shut down when the air-conditioning system is turned off.

Operation Notes

- For standard models, the controller is always turned on and in active operating mode when power supply is connected.
- For models with standby mode, the controller can be switched between standby and operating mode with the Fn icon.
- When constant display of ambient temperature is selected, LCD displays ambient temperature constantly. When either ▲ or ▼ adjustment icon is tapped, the LCD reading changes to show the current temperature set point value. Increase and decrease set point value by tapping ▲ icon and ▼ icon respectively. Will return to ambient temperature display when all control icons are passive for 5 seconds.
- Tap the Fn icon momentarily to enter the desired operating mode: Cool-Heat, Cool or Heat, Cool-Heat-Auto, Standby-Cool or Heat, Standby-Cool-Heat or Standby-Cool Auto or Heat Auto, depending on the model number.
- 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.
  Unoccupied mode activation in operating mode only or in both standby and operating mode will be determined by activation setting in setup menu.
  When unoccupied mode is activated, all keys are locked out and no settings can be entered.
- Window function is only available and applicable to models with standby mode. Whenever the window contact closes, all controller outputs will be cut off.
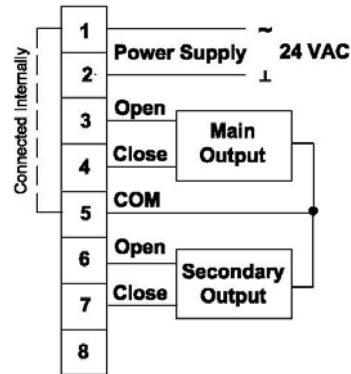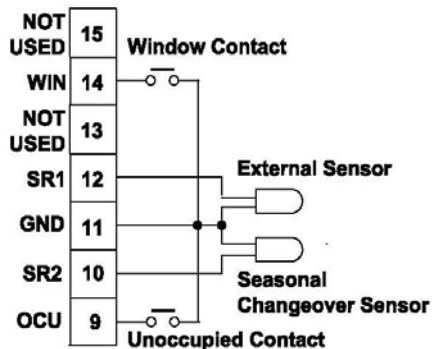
Cover Removal Procedure
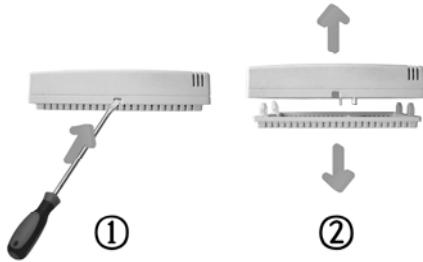
1. Poke a thin-blade screw driver into the slot between the cover and the base.
2. Slightly lever the screw driver upwards to crack open the cover from the base. Hold the base firmly with one hand and remove the cover with another hand by gently pulling away from the base.

Wiring Diagrams

On-Off/Floating Controller

0(2)-10 VDC Proportional Controller
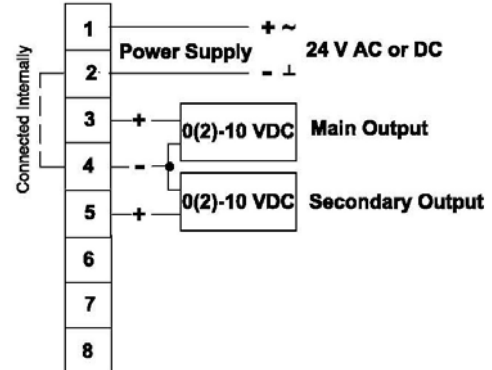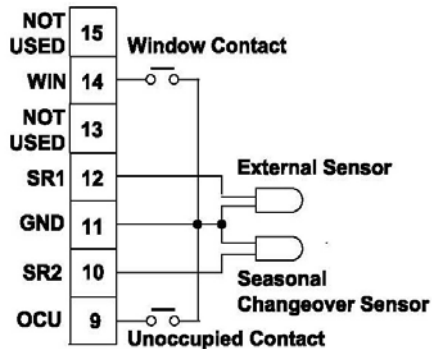
NOTE: Seasonal changeover sensors only applicable to TS24-T1and TS24-A1 models

0(2)-10 VDC Proportional and 24 VAC On-Off Dual-Output Controller