

## HA30D TWO STAGE ELECTRONIC TEMPERATURE CONTROL.

The HA30D is a microprocessor-based family of electronic temperature controls, designed to provide on/off control for commercial heating, cooling, air conditioning and refrigeration. The HA30D is equipped with a liquid crystal display (LCD) that provides a constant readout of the sensed temperature, and a touch keypad that allows the user to easily and accurately select the set point temperature, differential and heating/cooling mode of the operation. Models are available that operate on either line voltage (120/208/240 VAC) or low voltage (24VAC).



### Installation Instructions HA30D

#### IMPORTANT

1. All HA30D series controls are designed as operating controls only. If an operating control failure could result in personal injury or loss of property, a separate safety control and/or alarm should be installed.
2. The schematic drawings and other information included in these installation instructions are for the purpose of illustration and general reference only.
3. These instructions do not expand, reduce, modify or alter the Terms in anyway; and no warranty or remedy in favor of the customer or any other person arises out of these instructions.
4. The HA30D controls have been approved by Underwriters' Laboratories as UL Listed; however, approval does not extend to their use for any other purpose. Hydronic Alternatives assumes no responsibility for any unconventional application of its control unless such application has been approved in writing by Hydronic Alternatives.
5. It is the responsibility of the installer and the user to assure that his or its application and use of all Hydronic Alternatives products are in compliance with all federal, state and local requirements, including, without any limitation, all requirements imposed under the National Electric Code and any applicable building codes.

### Electric Installation HA30D

#### General

- All wiring should conform to the National Electric Code and local regulations.
- The total electrical load must not exceed the maximum rating of the control (see Specifications).
- Use copper conductors only.
- Electrical leads should not be taut; allow slack for temperature change and vibration.

#### Input and Output Wiring

For typical wiring diagrams, refer to Figures 6 and 7.

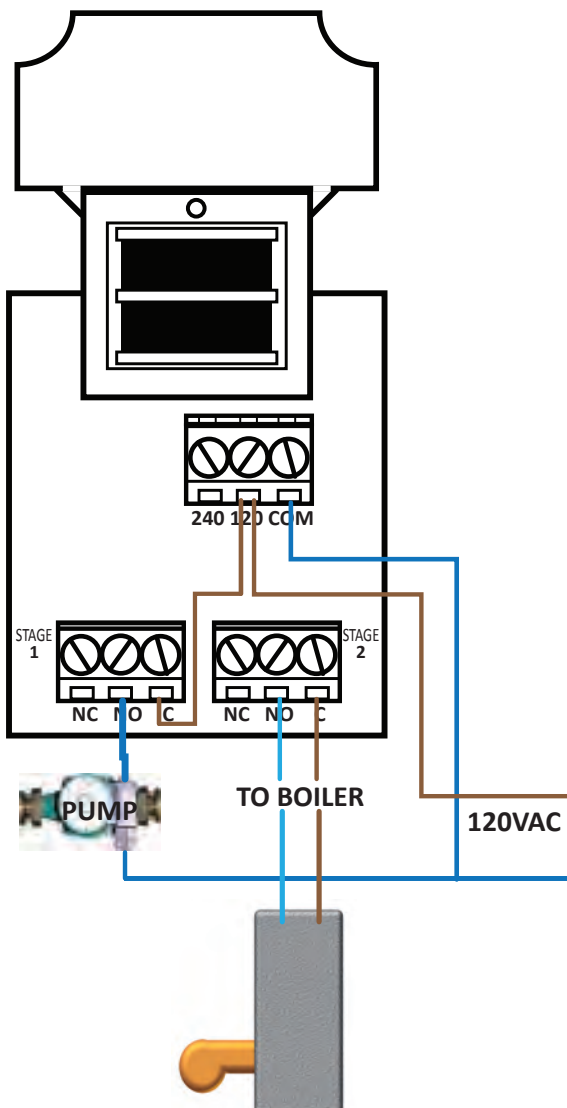
All connections are made to the power (lower) circuit board. When using the 24 VAC powered models, the 24 VAC input lines must enter through the sidewall of the case. Refer to Figure 5 for location of the entry hole.

#### Analog Output

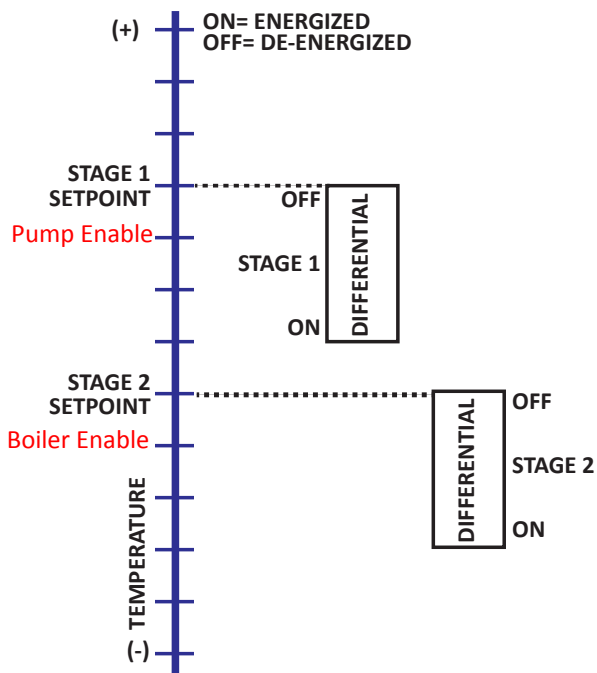
HA30D models are available with an optional 0 to 10 volt analog output. This signal is a linear representation of the sensor temperature with 0 volts = -30°F and 10 volts = 220°F. See figure 8 for wiring information and Figure 5 for location of the entry hole. The reference for this output is designated by the "-" symbol on the wiring diagram. The output signal is designated by the "+" symbol.

#### Sensor Wiring

The temperature sensor leads are soldered to the circuit board so no additional connections are necessary. However, splicing is required when extending the sensor cable length beyond the standard 8 foot length supplied with the HA30D. The sensor cable can be extended up to 400 feet. A damaged sensor can be replaced by splicing a new Ranco sensor onto the sensor leads from the circuit board. The sensor is not polarity sensitive.



Line Voltage Wiring Diagram.



Two Stage Heating Example

## Programming Steps and Display

The HA30D two stage can be programmed in seven simple steps using the LCD display and the three keys on the face of the control.

**Step 1** To start programming, press the **SET** key once to access the Fahrenheit/Celsius mode. The display will show the current status, either **F** for degrees Fahrenheit or **C** for degrees Celsius. Then press either the up  $\uparrow$  or down  $\downarrow$  arrow key to toggle between the F or C designation

### Stage 1

**Step 2** Press the **SET** key again to access the stage 1 set point. The LCD will display the current set point and the **S1** annunciator will be blinking on and off to indicate that the control is in the set point mode. Then press either the up  $\uparrow$  key to increase or the down  $\downarrow$  key to decrease the set point to the desired temperature.

**Step 3** Press the **SET** key again to access the stage 1 differential. The LCD will display the current differential and the **DIF1** annunciator will be blinking on and off to indicate that the control is in the differential mode. Then press either the up  $\uparrow$  key to increase or the down  $\downarrow$  key to decrease the differential to the desired setting.








**Step 4** Press the **SET** key again to access the stage 1 cooling or heating mode. The LCD will display the current mode, either **C1** for cooling or **H1** for heating. Then press either the up  $\uparrow$  or down  $\downarrow$  key to toggle between the **C1** or **H1** designation.

### Stage 2

**Step 5** Press the **SET** key again to access the stage 2 set point. The LCD will display the current set point and the **S2** annunciator will be blinking on and off to indicate that the control is in the set point mode. Then press either the up  $\uparrow$  key to increase or the down  $\downarrow$  key to decrease the set point to the desired temperature.

**Step 6** Press the **SET** key again to access the stage 2 differential. The LCD will display the current differential and the **DIF2** annunciator will be blinking on and off to indicate that the control is in the differential mode. Then press either the up  $\uparrow$  key to increase or the down  $\downarrow$  key to decrease the differential to the desired setting

**Step 7** Press the **SET** key again to access the stage 2 cooling or heating mode. The LCD will display the current mode, either **C2** for cooling or **H2** for heating. Then press either the up  $\uparrow$  or down  $\downarrow$  key to toggle between the C2 or H2 designation. Press the SET key once more and programming is complete.

Step	Annunciator	Description	Display
1	F or C	Fahrenheit or Celsius Scale	
2	S1 (blinking)	Stage 1 Set point emperature	
3	DIF1 (blinking)	Stage 1 Differential Temperature	
4	C1/H1	Stage 1 Heating Mode	
5	S2 (blinking)	Stage 2 Setpoint Temperature	
6	DIF (blinking)	2 Stage 2 Differential Temperature	
7	C2/1-12	Stage 2 Heating Mode	

Refer to Page 3 for an illustrated guide to programming the HA30D.

**NOTE:** The HA30D will automatically end programming if no keys are depressed for a period of thirty seconds. Any settings that have been input to the control will be accepted at that point,

All control settings are retained in non-volatile memory if power to HA30D is interrupted for any reason. Re-programming is not necessary after power outages or disconnects unless different control settings are required.