

# Carel IR-V Thermostat – Wiring, Operation, and Adjustment

## (1) Wiring

There are nine terminals on the rear of the Carel thermostat, and these are numbered from the left as you look at the back of the control.

- An independent power supply, protected by a 2 amp fuse, must be connected to terminals 4 & 5. Polarity is not important, & 18 gauge wire may be used.
- The sensor wires must be connected to terminals 7 & 8. Polarity is not important.
- Thermostat wires must be connected to terminals 1 & 2, & these connect to "C" & "T" on the controller, or to the Smart Speed Control (SSC) if fitted. (Refer to "SSC Wiring Instructions" for connection to the SSC). Polarity is not important, & 18 gauge wire will be adequate.

## (2) Thermostat Sensor mounting

The sensor must be mounted in the refrigerated cabinet so that it senses the average air temperature. It does not attach to the evaporator. It is best mounted at mid-height, on a wall or divider that does not have the evaporator mounted on it, and insulated from the wall so that it senses air only.

## (3) Initial Settings

The Carel IR-V thermostat's factory default setting is to read and operate in Celsius as a heater thermostat. This item has been set to read and operate in Fahrenheit as a refrigeration thermostat, and the set-point set at 40 degrees. The following procedures must be performed following a General Reset (see (5) below).

- To change thermostat to work in refrigeration ("Direct") mode:
  - Press "PRG/mute" & "SEL" together & hold down for 5 seconds until "0" flashes.
  - Press "UP" or "DOWN" arrows until display reads "77".
  - Press "SEL" - "C O" appears in display.
  - Press "SEL" again, "1" or "2" appears on display. "1" is "Direct" or refrigeration mode; "2" is "Indirect" or heater mode.
  - Press "UP" or "DOWN" arrows until "1" appears on display.
  - Press "SEL", "C O" appears on display.
  - Press "PRG/mute", thermostat will now work in refrigeration ("Direct") mode.
- To set thermostat to work and display in Fahrenheit or Celsius
  - Press "PRG/mute" & "SEL" together & hold down for 5 seconds until "0" flashes.
  - Press "UP" or "DOWN" arrows until display reads "77".
  - Press "SEL", "C O" appears in display.
  - Press "UP" arrow until "C18" appears on display.
  - Press "SEL", "0" or "1" appears on display. "0" indicates thermostat will work in Celsius. "1" indicates thermostat will work in Fahrenheit
  - Press "UP" and "Down" arrow buttons to change display between "0" to "1" and so set thermostat to work in Celsius or Fahrenheit.
  - Press "PRG/mute", display will now read in degrees Fahrenheit.
- To change temperature set-point:
  - Press & hold "SEL" for 2 seconds until "St-1" appears in display.
  - Release "SEL" & temperature set point is displayed & flashes. The factory default set-point is "20.0".
  - Press "UP" or "DOWN" arrows to the desired set-point. Suggested set-points in Fahrenheit are "40.0" for a refrigerator & "8.0" for a freezer.
  - Press "SEL" to return to temperature display.

NOTE: Allow sufficient time for the system to settle down between making adjustments. At least one day is recommended.

## (4) Subsequent Adjustments

One of the features of the Carel IR-V thermostat is that the temperature sensor can be calibrated. If, after some time in operation, it is suspected that the temperature sensor is reading incorrectly, we suggest you first confirm this with an accurate thermometer, then adjust the Calibration Offset as follows.

To calibrate sensor (Calibration Offset):

- Press & hold "PRG/mute" for 5 seconds until "P1" is displayed.
- Press "UP" or "DOWN" arrows until "P14" is displayed.
- Press "SEL" to display the current offset value. (The default setting is "0.0")
- Press "UP" or "DOWN" arrows to enter in the desired offset.
- Press "PRG/mute" to return to temperature display, which will now have been adjusted by the value of the offset entered.

It is not recommended that you alter or attempt to alter any of the remaining settings referred to in the Carel literature. Many of these are not applicable to this control, & others have been factory set to values that have been found to work well in refrigeration applications.

## (5) General Reset

A General Reset will return all the settings to the factory defaults. Turn power off to thermostat. Then restore power while holding down the "PRG/mute" button. Follow instructions in (3) a, b, and c.

## (6) Operation

After the initial settings are set as described above, the Carel thermostat will be working in refrigeration, or "Direct" mode. The display will show the temperature at the sensor, in degrees Fahrenheit or Celsius, and the thermostat will turn on the refrigeration system when the temperature on the display rises by more than 2 degrees from the set point. When the refrigeration system is operating, the "Direct" LED will flash on the display. The thermostat will stop the refrigeration system when the set point is reached, & the "Direct" LED will cease to flash.

To view and/or adjust the set point at any time, refer to (3) in "Initial Settings" above.