# "TSTAT ADAPTER"
CX34 Fan Coil Interface Box

Allows a standard heat pump thermostat to control the heating/cooling operation of CX34. This adapter is designed for users who use Chiltrix CX34 with a standard heat pump thermostat. There is no other application for this device. Users with radiant or fan coil units will use their associated controls for that part of the system.

This device allows the CX34 to switch operation between cooling and heating based on a standard thermostat. It is not a thermostat or controller. It is an interface adapter used to connect a standard heat pump thermostat to a CX34 or to a Psychrologix controller. The only function provided is that of switching between heating and cooling.

Users may also want to consider the Chiltrix Psychrologix™ controller.
http://www.chiltrix.com/chiller-controller/

Version 1.3
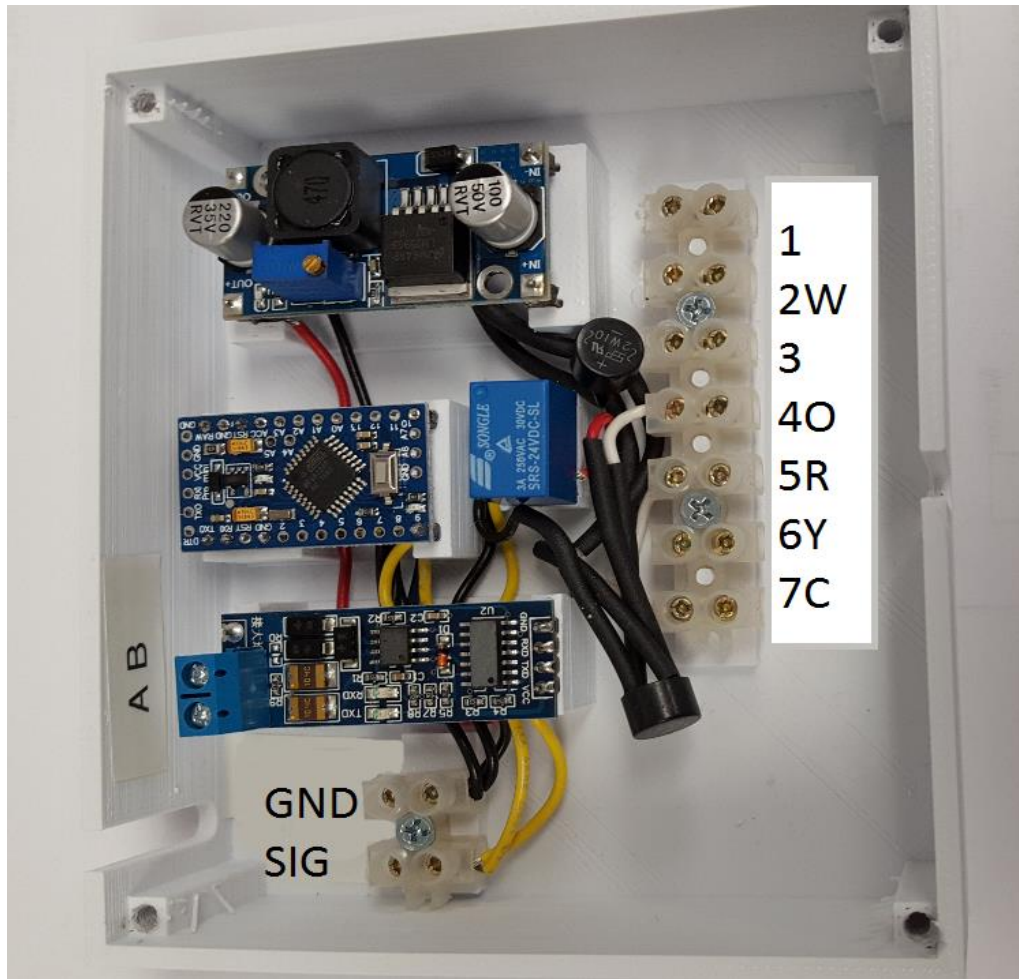
The fan coil interface box is designed to connect a standard heat pump thermostat directly, or via a ducted fan coil unit control, to a Chiltrix CX34 outdoor unit(s) (up to three) either directly via Modbus or through the Chiltrix system's Psychrologix controller. This allows the thermostats "cooling" and "heating" function switch to have control over the Heating and Cooling functions of CX34 when a generic Air Handler unit is installed in the system. This device will not turn the CX34 on or off, only switch modes between heating and cooling.
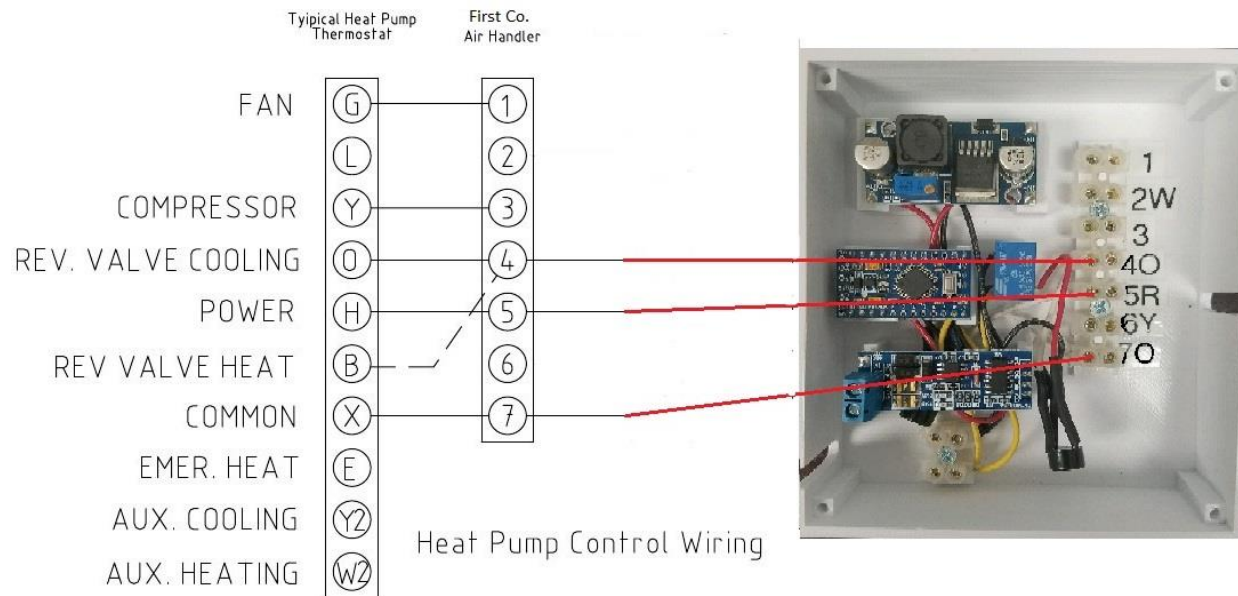
Connections between the interface box and AHU

This interface box is primarily used to connect a Heat Pump thermostat controlling a central Air Handling Unit. The thermostat temperature set points control the fan while the thermostat function switch controls whether the CX34 is in cooling or heating mode. The compressor terminals have no function in this setup and are not necessary because the CX34 controls its own compressor status and speed based on water return loop temperature for optimal performance.
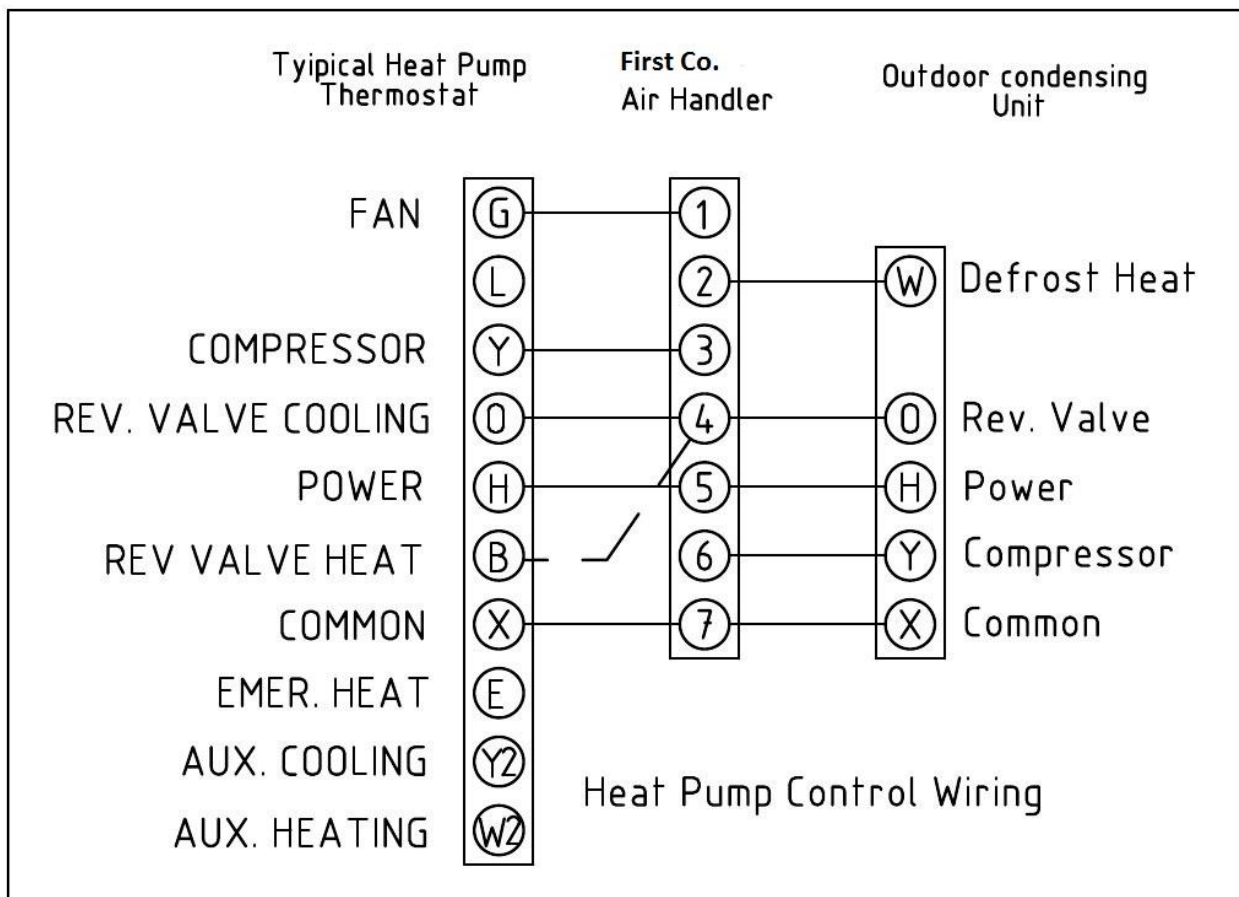
The illustration above shows how a typical thermostat, Air Handler unit and outdoor heat pump are set up.

The interface box has the same seven connection points as a typical Air Handler terminal block, however, all seven are not used. Only the Common, Power and "Rev. Valve Cooling " connections are used.

Heat Pump Control Wiring

Connections between interface box and the Psychrologix Controller

If a Psychrologix controller is used in the system, then the connection is made between the two terminals marked "SIG" and "GND" in the interface box as shown in figure 1 below, and the two similar terminals inside the Psychrologix controller, as shown in figure 2.
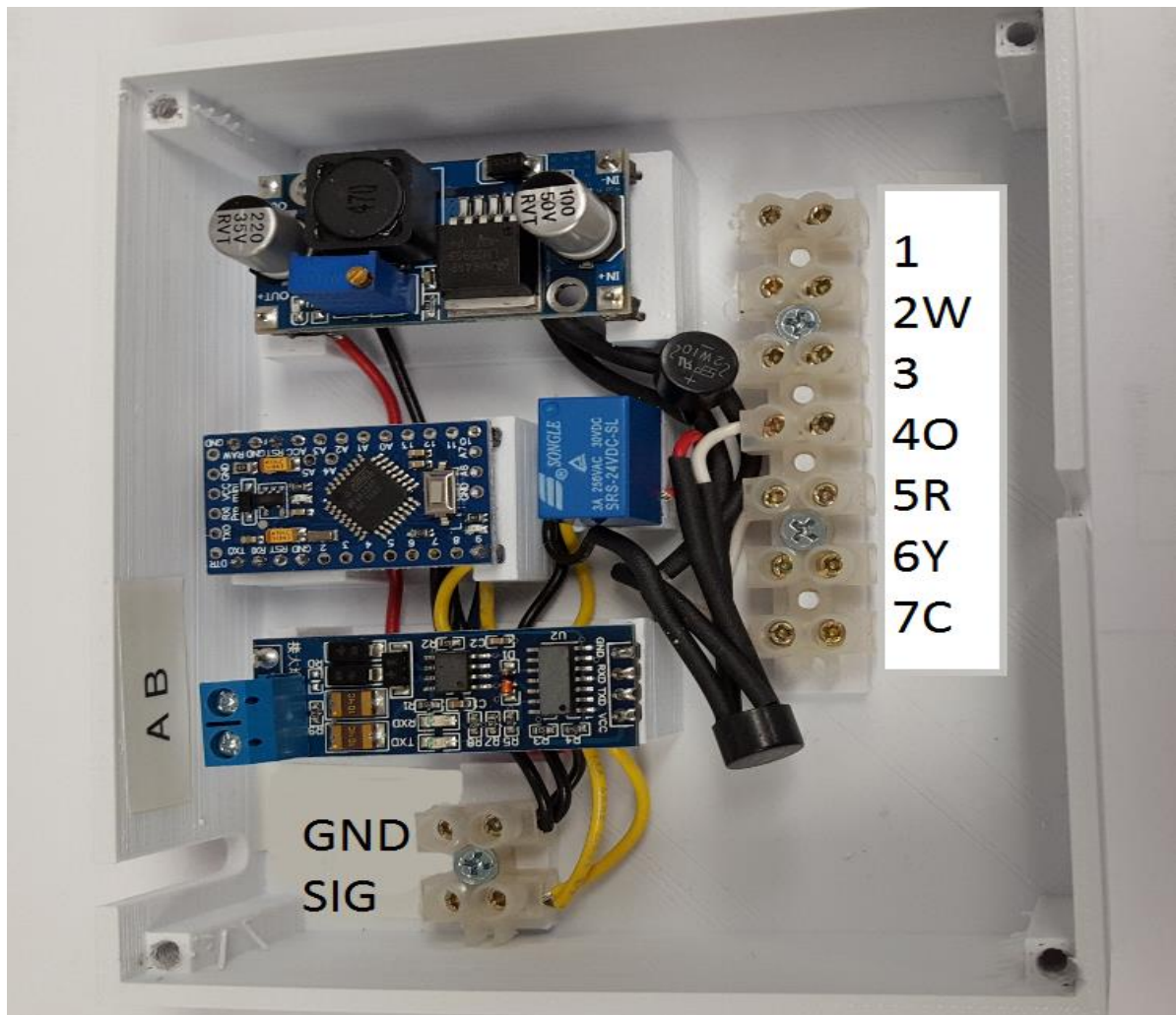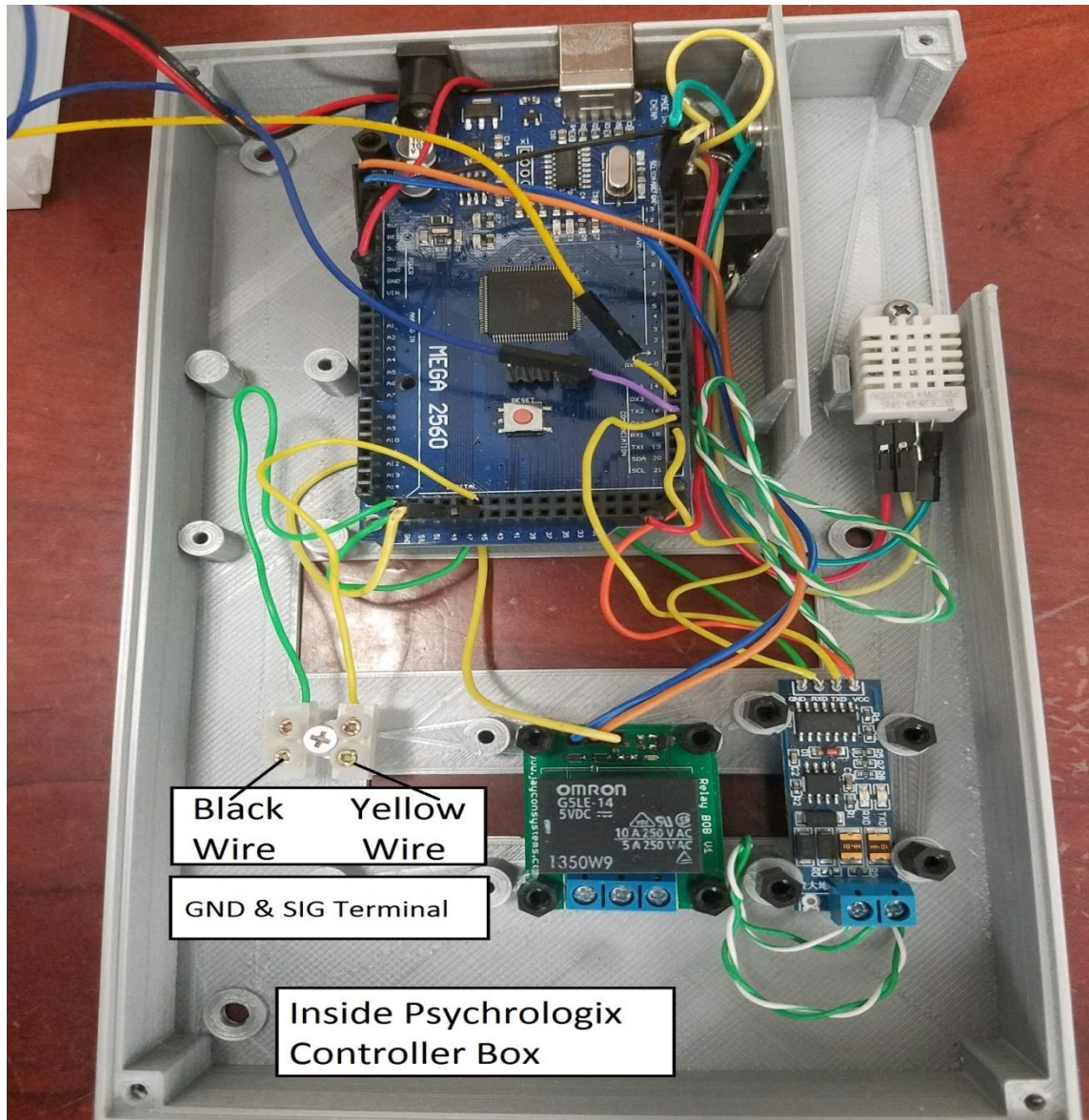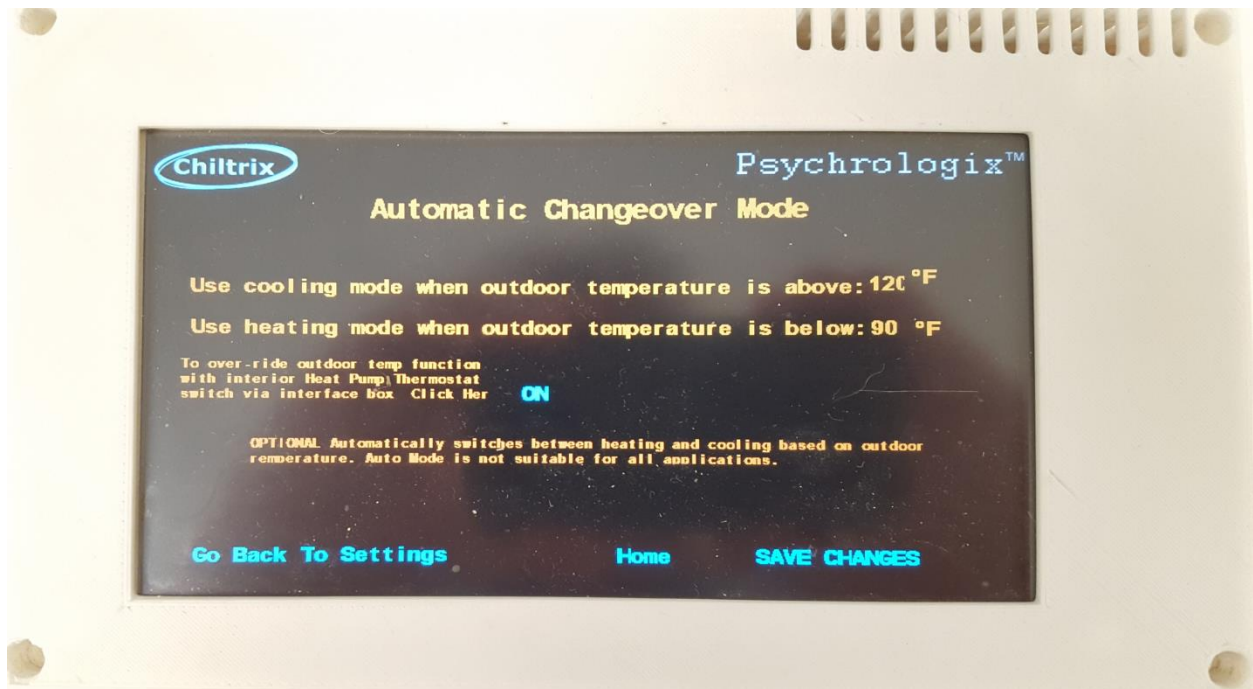

Figure 1

Figure 2

These terminals are connected from terminal "1" (green wire) to the ground terminal (black wire) in the interface box. The Sig terminal (yellow) in the interface box connects to the terminal "2" (yellow wire) in the Psychrologix controller.

Once the interface box and the Psychrologix controller are connected, the Psychrologix controller must be programed to operate under control of the external thermostat. From the Main page of the controller, touch the setting button to go to the primary settings page. From the "settings" page, press "Auto Mode" (second from the bottom left side). This will take you to the "Automatic Changeover Mode" page.   Below The cooling and heating outdoor setting is a paragraph that states "to over-ride outdoor temp function with interior Heat Pump Thermostat switch via interface box, Click Here" touch the "Off" and in will turn to a blue "ON" and the Heating and Cooling outdoor temperature setting will turn from blue to copper.

With the over-ride "ON", touch the "Save Changes" button and this function is now saved to memory. Touch "Home" and after the screen updates, touch the "Auto" button on the lower left side of the Main Screen to give seasonal control to your Heat pump Thermostat.

To test this function, place your Heat pump thermostat switch into Heating and watch the Main screen "Mode" (third item from top between "Status" and "DHC"). After a few minutes, this should switch to "Heating" or "Heating w/ DHW" depending on if DHW option is used. Place your Heat pump thermostat switch to Cooling, and again, after a few minutes, "Mode" should change to "Cooling" or "Cooling w/DHW".

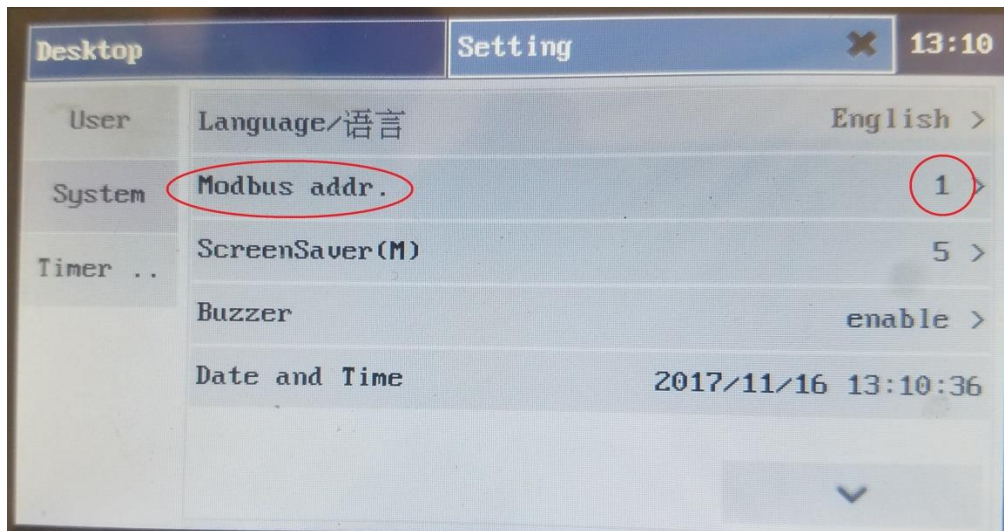# Connecting the Interface Box to the CX34 without a Psychrologix Controller

If a Psychrologix controller is not used, the interface box can still be connected to the CX34 directly via Modbus. The interface box acts as a Modbus master and up to 3 CX34s can be slaved as address 1, 2 and 3.
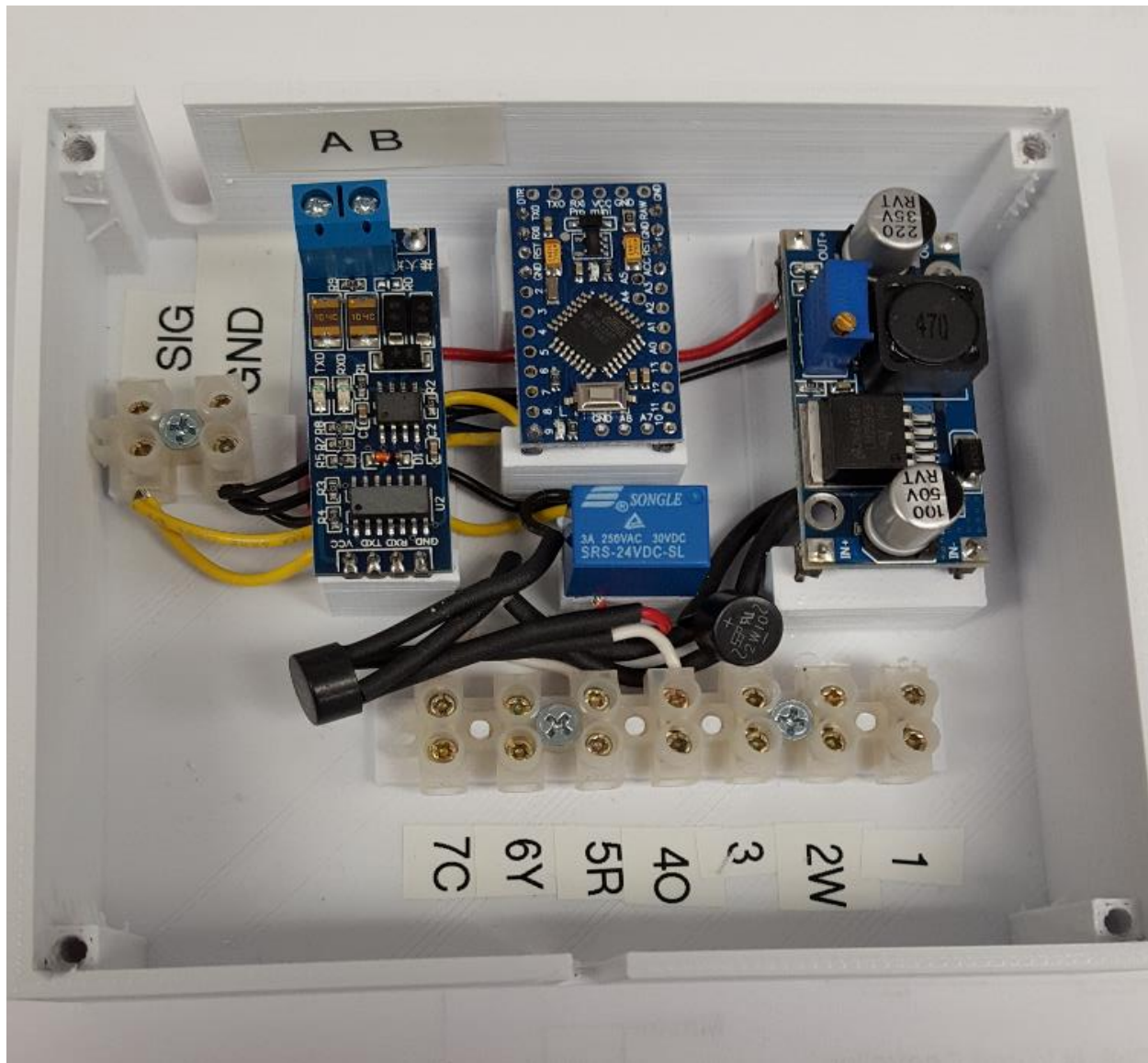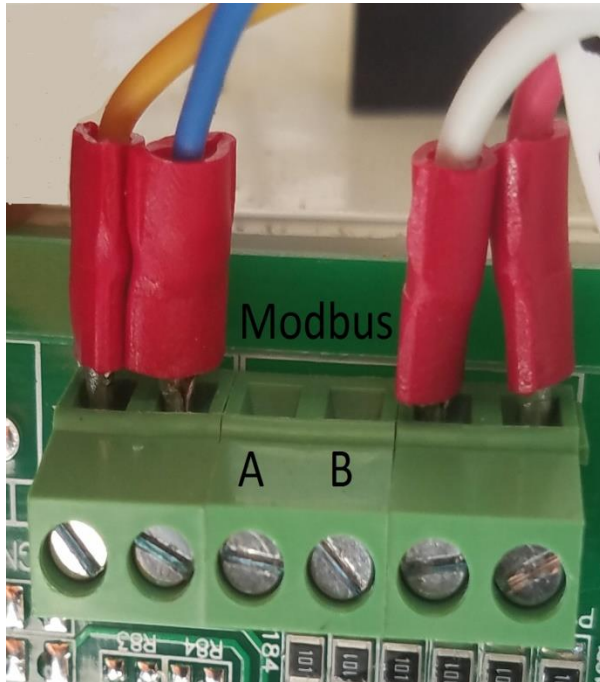
Setting the CX34 MODBUS address
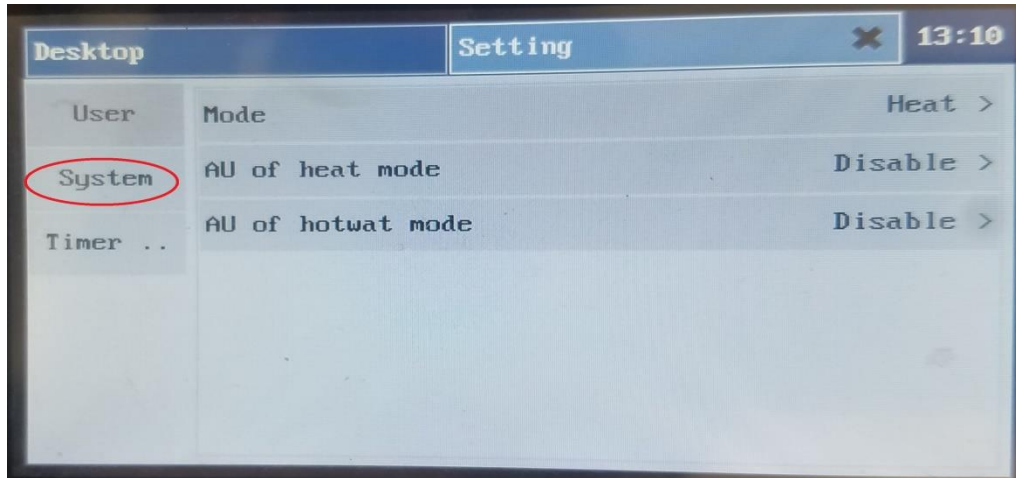
Using the CX34 wired controller select "settings" from the desktop and then select "system" to access the Modbus settings.

Select "Modbus addr." And change the Modbus address 1-3.

The "A" and "B" connection points in the interface box are connected to the "A" and "B" connection points on the CX34's controller board (Modbus slave), top left corner.

Modbus connection on main CX34 control board

Note that the red wire is connected to "A" and the white wire is connected to "B" on the two terminals at the center of the terminal.

Important Application Note

When the T-stat control box is used without a Psychrologix controller, it acts as a mini Modbus Master with only two functions. First it determines if your chiller is set up to also heat Domestic Hot Water by checking to see if the chiller identifies DHW as a valid function (C-19). Setting DHW as a valid function is done by setting P-08 to "0" valid (Default) . See CX-34 manual page 23. You must have the system plumbing set up with a G-1 valve, remote DHW sensor, etc.

If your system is not set up for DHW, the setting P-08 must be set to invalid "1". Failure to do this could cause issues with the operation of the unit.

The second function of the T-stat controller box is to send a Modbus signal to the chiller telling it to be in heat mode or cooling mode according to the position of a standard heat pump thermostat mode switch. If the controller is set up for DHW then the T-stat controller will put the chiller in Cooling with DHW (mode 3)or Heating with DHW (mode 4) according to the standard heat pump thermostat mode switch. If the DHW function is not used, the T-stat controller will know to send the chiller "Cooling only" (Mode 0) and "Heating only" (Mode 1).

Note that the CX34 wired controller will be overridden by Psychrologix controller when changing modes between heat/cool/standby. So use Psychrologix, or disconnect it, as needed for manual operation with the wired controller.

Note, timer function of CX34 is not compatible with Psychrologix controller.