

## 5.4 Connect External Air and Panel Temperature Sensors

Your SunPump system comes with two NTC 10k Ohm temperature sensors that need to be installed outdoors and connected by AWG22 2 conductor wire to the small plastic connector on the right side of the indoor heat pump unit shown in green as figure S2 on page 6 parts list. Their purpose is to assist in Defrost and heating controls by measuring temperature through small changes in resistance that correspond. In new construction the wires can be roughed-in from Mechanical room to roof and soffit overhang areas. Make certain S1 is installed in the lower tank thermistor well, as shown in red on the parts page 6. If it is in the upper Well, move it to the lower for best results.

The small black or white plastic connector is a **JST** type used in low voltage Electronics and Vehicles. It is like the Molex type that also uses miniature crimped pins, but is smaller. Learn how to undue a connection pair, you must depress a catch. Do not try to pull apart by tugging on the wires, the pins are not hard to damage and then the fix becomes time consuming. Be patient, do not use force.

The Ambient Air sensor (bottom right), should be installed on a shady exterior wall, or alternatively under the roof overhang shown in the picture. Do not locate inside the Attic, on the roof, or in the Sun where the accuracy will be lost.

The Panel sensor (right), is fastened securely by a twisted wire strand done with pliers, to a Panel on the smaller ¼" liquid line that is the lower of the two on any Panel. The sensor needs to be as close to the panel as possible, right at the square cut-out is best. The goal is to measure the lower entry to the Panel, where Frost builds up. Do not install on a pipe that is inches away from the Panel because it is less accurate.

Extending the AWG22 gauge wire is simple, but needs to be done with care. Solder the twisted strands and use a shrink wrap to seal joined wires to avoid poor connection aging that will increase resistance and alter the sensor accuracy over time. Installers should consider a JST crimper kit and bulk wire to make various lengths as required. A prepared 50-foot roll with male to female JST ends can plug in to extend sensors.

