BSP Temperature Measurements.
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Wednesday, July 31, 2002

Here we discuss the relationship between Temperature and Resistance for an ideal PT100 for the BSP cooling tests.

The data recorded by the PT-100 DAQ system is in the form of resistances. This resistance includes the length of wire used to read out the sensor. The relationship between R and T for a "bare" PT-100 is taken from "Temperature Sensing with Thermocouples and Resistance Thermometers. A Practical Handbook. LabFacility LTD (2^{nd} Edition). Table 7 on page 38.

$$R(\text{Ohms}) = 0.3879\ T\ (^{o}C) + 99.911$$

The lengths of the wire to each PT100 should all be the same. To a first approximation this is true. To determine the offset resistance for each sensor, caused by the wire resistance, a reference length of wire (of standard length) is shorted out and the data from this length of wire are recorded as part of the data stream. To see where this data will appear in the data stream see the Channel Numbering Scheme associated with a given configuration.

However a handful of the PT-100s are slightly different. As a cross check we allow the BSP to reach ambient temperature inside the environmental chamber with no evaporative or ambient cooling and record the resistance values. Assuming the entire system reaches the same equilibrium temperature rogue measurements are identified as high resistance values.