



Many customers ask; How often do I have to recertify thermistor sensors?

BAPI researched specifications at ASHRAE, NIST, UL and ANSI. We did not find any standards, guidelines or published recommendations that dealt with peripheral sensor recertification from any of these standards associations.

During qualification testing the thermistors that BAPI uses were aged at 100°C for one year. After the year was over, none of the thermistors had drifted more than 0.2°C from their starting point. The equivalent drift at 25°C is on the order of 0.004°C in five years. BAPI feels very comfortable with specifying 0.2°C in five years.

BAPI discussed thermistor recertification with the person in charge of Industrial Thermometry, National Institute of Standards and Technology, Gaithersburg, Maryland. The NIST researcher informed BAPI that a thermistor is the most stable thermometer available. Her opinion is "Thermistors are more stable than RTDs or mercury in glass thermometers." NIST has tested thermistors of equivalent construction to BAPI products that were in service for eight years and found no measurable drift.

BAPI understands that it may be good practice to inspect thermistor sensors on a periodic basis. We are not concerned that the thermistor sensor will drift, but we are concerned that other environmental factors may physically damage the sensor, careless workmen dropping tools for example. Each facility is unique and has its own requirements. BAPI's technical service representatives will be happy to consult with you and make recommendations based on your requirements.

Presently BAPI does not offer a device that can be used to recertify thermistor sensors. Hart Scientific is a U.S. manufacturer that makes a suitable unit that can be used for air, duct or immersion certification. Secondary Reference Temperature Standards come in stainless steel sheaths with lengths of 6, 9 and 12 inches. Digital Handheld Thermometers read these temperature probes to accuracies of 0.025°C with drifts of 0.01°C per year when calibrated annually at an accredited certified laboratory. These units are very fragile, simply bumping them against a surface, so that you hear an audible click, may unpredictably offset the probe by up to 0.015°C.

Certification of the BAPI thermistor sensor is performed by comparing the reported temperature of the thermistor sensor to the reported temperature of the certification probe. Record the temperature reading of the BAPI probe. Remove duct and immersion thermistor probes from their mounts and insert the certification probe in their place. Certification probes can take up to 60 seconds to reach a stable reading, so the technician must be patient.

The certification must be performed during steady state conditions. If the duct air temperature or the water temperature changes from when you take the initial temperature with the BAPI thermistor sensor in place until the certification probe has reached a steady state temperature, you must repeat the entire certification procedure. After the certification probe has reached its steady state temperature, record the temperature reading. Compare the two readings to determine if any offset is necessary. Program the offset into the proper analog input of your control system.

Certifying room sensors is similar. Place the tip of the certification probe next to the thermistor in the room sensor. Record the reading of the certification probe and the reading of the room sensor. Determine the offset and program it into the appropriate analog input.

Thank you for your attention. If you have any questions contact your BAPI representative.