What is claimed is:

1. A vibrating element meter (5) for meter health verification, the vibrating element meter (5) comprising:

a sensor assembly (10) including a vibrating member (12), a pickoff/detection sensor (17), and a driver (16) configured to vibrate the vibrating member (12);

at least one temperature sensor (112); and

meter electronics (20) coupled to the pickoff/detection sensor (17), the driver (16), and the at least one temperature sensor (112), with the meter electronics (20) being configured to measure a plurality of temperatures using the at least one temperature sensor (112) and a plurality of sensor time periods using the sensor assembly (10), determine an average temperature from the plurality of temperatures, determine an average sensor time period from the plurality of sensor time periods, receive an altitude, compensate the average sensor time period using the average temperature and the altitude to generate a compensated sensor time period, compare the compensated sensor time period to a reference sensor time period.

2. A vibrating element meter (5) of claim 1, wherein the meter electronics (20) is further configured to measure a density of a fluid using the sensor assembly (10), and compensate the compensated sensor time period (210) for a difference in density between the reference density (220) and the measured density (219) using the altitude (218) and the average temperature (208).

3. A vibrating element meter (5) of claim 1, wherein the method further comprises:

indicating whether the compensated sensor time period is within a sensor time period error limit of the reference sensor time period.

4. A method for health verification of a sensor, the method comprising the steps of:

measuring a plurality of temperatures (206) using at least one temperature sensor (112) and a plurality of sensor time periods (207) using a sensor assembly (10), the sensor assembly (10) including a vibrating member (12), a pickoff/detection sensor (17), and a driver (16) configured to vibrate the vibrating member (12);

determining an average temperature (208) from the plurality of temperatures (206);

determining an average sensor time period (209) from the plurality of sensor time periods (207);

receiving an altitude (218);

compensating the average sensor time period (209) using the average temperature (208) and the altitude to generate a compensated sensor time period (210);

comparing the compensated sensor time period (210) to a reference sensor time period (211); and

indicating whether the compensated sensor time period (210) is within a sensor time error limit (212) of the reference sensor time period (211).

5. The method of claim 4, wherein compensating the average sensor time period (209) using the average temperature (208) and the altitude (218) further includes:

measuring a density of a fluid using the sensor assembly (10); and

compensating the compensated sensor time period (210) for a difference in density between the reference density (220) and the measured density (219) using the altitude (218) and the average temperature (208).

6. A method for health verification of a sensor, the method comprising the steps of:

measuring a plurality of temperatures (206) using at least one temperature sensor (112) and a plurality of sensor time periods (207) using a sensor assembly (10), the sensor assembly (10) including one or more vibrating members (12), one or more pickoff/detection sensors (17), and a driver (16) configured to vibrate the one or more vibrating members (12);

determining an average temperature (208) from the plurality of temperatures (206);

determining an average sensor time period (209) from the plurality of sensor time periods (207);

receiving an altitude (218);

measuring a density of a fluid using the sensor assembly (10); and

compensating the average sensor time period (209) for a difference in density between the reference density (220) and the measured density (219) using the altitude (218) and the average temperature (208).