What is claimed is:

1. A vibratory meter (5), comprising:

a driver (104);

a vibratory member (103, 103') vibratable by the driver (104);

at least one pickoff sensor (105, 105') configured to detect vibrations of the vibratory member (103, 103');

meter electronics (20) comprising an interface (301) configured to receive a vibrational response from the at least one pickoff sensor (105, 105'), and a processing system (303) coupled to the interface (301) configured to:

measure a drive gain (306) of the driver (104);

measure a total density (325) of a multiphase process fluid in the vibratory meter (5);

determine whether the drive gain (306) is below a first threshold;

determine a liquid/liquid phase concentration allocation with the measured total density (325) if the drive gain (306) is below the first threshold, and calculate a flow rate for each liquid phase;

determine at least one of whether the drive gain (306) is above a second threshold that is greater than the first threshold and whether the drive gain (306) is above a first drive gain noise threshold; and

determine a gas/liquid phase concentration allocation with the measured total density (325) and a previously determined liquid density, if the measured total density (325) is lower than a liquid density range, and calculate a flow rate for each phase.

2. The vibratory meter (5) of Claim 1, wherein the processing system (303) is configured to:

determine whether the drive gain (306) is below a first drive gain noise threshold, if the drive gain (306) is above the first threshold; and

determine whether the drive gain is below a second drive gain level threshold.

3. The vibratory meter (5) of Claim 2, wherein the processing system (303) is configured to:

determine a solid/liquid phase concentration allocation with the measured total density (325) and a previously determined liquid density, if the measured total density (325) is within a solids density range, and calculate a flow rate for each fluid phase.

4. The vibratory meter (5) of Claim 2, wherein the processing system (303) is configured to:

determine a liquid/liquid phase concentration allocation with the measured total density (325), if the measured total density (325) is lower than a solids density range and within a liquids density range, and calculate a flow rate for each phase.

5. The vibratory meter (5) of Claim 2, wherein the processing system (303) is configured to:

determine a gas/liquid phase concentration allocation with the measured total density (325) and a previously determined liquid density, if the measured total density (325) is lower than a solids density range and within a gas density range, and calculate a flow rate for each phase.

6. A method of flowmeter phase fraction and concentration measurement adjustment comprising the steps of:

providing a vibratory flowmeter;

flowing a multiphase process fluid through the vibratory flowmeter;

measuring a drive gain of a driver of the vibratory meter;

measuring a density of the process fluid;

determining whether the drive gain is below a first threshold; and

determining a liquid/liquid phase concentration allocation of the process fluid with the measured total density if the drive gain is below the first threshold, and calculate a flow rate for each liquid phase;

determining at least one of whether the drive gain is above a second threshold that is greater than the first threshold and whether the drive gain is above a first drive gain noise threshold; and

determining a gas/liquid phase concentration allocation with the measured total density and a previously determined liquid density, if the measured total density is lower than a liquid density range, and calculate a flow rate for each phase.

7. The method of flowmeter phase fraction and concentration measurement adjustment of Claim 6, comprising the step of:

determining whether the drive gain is below a first drive gain noise threshold, if the drive gain is above the first threshold; and

determining whether the drive gain is below a second drive gain level threshold.

8. The method of flowmeter phase fraction and concentration measurement adjustment of Claim 7, comprising the step of:

determining a solid/liquid phase concentration allocation with the measured total density and a previously determined liquid density, if the measured total density is within a solids density range, and calculate a flow rate for each fluid phase.

9. The method of flowmeter phase fraction and concentration measurement adjustment of Claim 7, comprising the step of:

determining a liquid/liquid phase concentration allocation with the measured total density, if the measured total density is lower than a solids density range and within a liquids density range, and calculate a flow rate for each phase.

10. The method of flowmeter phase fraction and concentration measurement adjustment of Claim 7, comprising the step of:

determining a gas/liquid phase concentration allocation with the measured total density and a previously determined liquid density, if the measured total density is lower than a solids density range and within a gas density range, and calculate a flow rate for each phase.