

We claim:

1. A meter electronics (20) for determining a damping of a meter assembly (10) of a flow meter (5), the meter electronics (20) comprising an interface (201) for receiving a vibrational response from a meter assembly (10), the vibrational response comprising a response to an excitation of the meter assembly (10) at a substantially resonant frequency, and a processing system (203) in communication with the interface (201), the processing system (203) being configured to:
 - receive the vibrational response from the interface (201);
 - measure a plurality of response voltages (V) of the vibrational response, the plurality of response voltages (V) including at least one of one or more decay sections (430a, 530a-530f) and one or more rising sections (430b, 630a-630f); and
 - determine an aggregate damping-related value of the meter assembly (10) based on the one or more decay sections (430a, 530a-530f) and the one or more rising sections (430b, 630a-630f).
2. The meter electronics (20) of claim 1, wherein at least one of the one or more decay sections (430a, 530a-530f) and the one or more rising sections (430b, 630a-630f) are a cyclical response voltage plot (430, 530, 630).
3. The meter electronics (20) of claim 1 or claim 2, wherein the one or more decay sections (530a-530f) are of a response voltage decay curve and the one or more rising sections (630a-630f) are of a response voltage rising curve.
4. The meter electronics (20) of one of any of the foregoing claims 1 through 3, wherein the aggregate damping-related value of the meter assembly (10) is an aggregate decay characteristic value of the meter assembly (10) based on the one or more decay sections (430a, 530a-530f).
5. The meter electronics (20) of claim 4, wherein the processing system (203) is further configured to determine a damping characteristic based on the aggregate decay characteristic value.

6. The meter electronics (20) of claim 4, wherein the aggregate decay characteristic value is an average of fractional decay characteristics respectively corresponding to the one or more decay sections (530a-530f).

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7. The meter electronics (20) of one of any of the foregoing claims 1 through 6, wherein the aggregate damping-related value of the meter assembly (10) is an aggregate damping characteristic value of the meter assembly (10).

10 8. The meter electronics (20) of claim 7, wherein the aggregate damping characteristic value of the meter assembly (10) is comprised of the average damping characteristic of the meter assembly (10).

9. A method for determining a damping of a meter assembly of a flow meter, the method comprising receiving a vibrational response from a meter assembly, the vibrational response comprising a response to a vibration of the meter assembly at a substantially resonant frequency, with the method further comprising:

receiving the vibrational response;
measuring a plurality of response voltages of the vibrational response, the
20 plurality of response voltages including at least one of one or more decay sections and one or more rising sections; and
determining an aggregate damping-related value of the meter assembly based on the one or more decay sections and the one or more rising sections.

25 10. The method of claim 9, wherein at least one of the one or more decay sections and the one or more rising sections are a cyclical response voltage plot.

11. The method of one of claim 9 or claim 10, wherein the one or more decay sections are of a response voltage decay curve and the one or more rising sections are of
30 a response voltage rising curve.

12. The method of one of any of the foregoing claims 9 through 11, wherein the aggregate damping-related value of the meter assembly is an aggregate decay characteristic value of the meter assembly based on the one or more decay sections.

5 13. The method of claim 12, further comprising determining a damping characteristic based on the aggregate decay characteristic value.

14. The method of claim 12, wherein the aggregate decay characteristic value is an average of fractional decay characteristics respectively corresponding to the one or more
10 decay sections.

15. The method of one of any of the foregoing claims 9 through 14, wherein the aggregate damping-related value of the meter assembly is an aggregate damping characteristic value of the meter assembly.

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16. The method of claim 15, wherein the aggregate damping characteristic value of the meter assembly is comprised of average damping characteristic of the meter assembly.