

## CLAIMS

### WHAT IS CLAIMED IS:

1. A method comprising:
  - determining an initial orientation of an electric meter based on initial acceleration measurements from an accelerometer positioned in the electric meter;
  - continuously monitoring subsequent acceleration measurements from the accelerometer;
  - determining a subsequent orientation of the electric meter based on the subsequent acceleration measurements;
  - determining a difference between the initial orientation and the subsequent orientation based on the initial acceleration measurements and the subsequent acceleration measurements;
  - comparing the difference to a threshold value;
  - determining that the difference exceeds the threshold value; and
  - based on the difference exceeding the threshold value, generating a notification of a change in orientation of the electric meter to a head-end system.
2. The method of claim 1, wherein determining the initial orientation of the electric meter comprises executing a firmware procedure to initiate the initial acceleration measurements on the electric meter during installation.
3. The method of claim 1, wherein determining the initial orientation of the electric meter comprises initiating the initial acceleration measurements from the accelerometer by the electric meter when the electric meter first registers on a network and transitions to an operational mode at an installation site.
4. The method of claim 1, wherein continuously monitoring the subsequent acceleration measurements from the accelerometer comprises receiving acceleration measurements from the accelerometer at predetermined time intervals.
5. The method of claim 1, wherein determining a difference between the initial orientation and the subsequent orientation comprises determining a difference between the initial acceleration measurements and the subsequent acceleration measurements.

6. The method of claim 1, wherein determining a difference between the initial orientation and the subsequent orientation comprises:

determining an initial tilt angle of the electric meter based on the initial acceleration measurements,

determining a subsequent tilt angle of the electric meter based on the subsequent acceleration measurements, and

comparing the initial tilt angle to the subsequent tilt angle.

7. The method of claim 6, further comprising:

determining a tilt angle difference of the electric meter at predetermined time intervals when subsequent acceleration measurements from the accelerometer are received.

8. The method of claim 6, wherein a tilt angle of the electric meter is an angle in a front-to-back direction with respect to a front face of the electric meter, an angle in a side-to-side direction with respect to the front face of the electric meter, or an angle in a rotation direction around a vertical axis of the electric meter.

9. An electric meter, comprising:

an accelerometer configured to:

obtain initial acceleration measurements of the electric meter due to gravity;

and

obtain subsequent acceleration measurements of the electric meter due to gravity over time; and

a processor in communication with the accelerometer, wherein the processor is configured to:

receive the initial acceleration measurements and the subsequent acceleration measurements from the accelerometer;

determine an initial orientation of the electric meter based on the initial acceleration measurements;

determine a subsequent orientation of the electric meter based on the subsequent acceleration measurements;

determine a difference between the initial orientation and the subsequent orientation based on the initial acceleration measurements and the subsequent acceleration measurements;

compare the difference to a threshold value;

determine that the difference exceeds the threshold value; and  
based on the difference exceeding the threshold value, generate a notification of a change in orientation of the electric meter to a head-end system.

10. The electric meter of claim 11, wherein the processor is further configured to determine a difference between the initial orientation and the subsequent orientation by determining a difference between the initial acceleration measurements and the subsequent acceleration measurements.

11. The electric meter of claim 9, wherein the processor is further configured to determine a difference between the initial orientation and the subsequent orientation by:

determining an initial tilt angle of the electric meter based on the initial acceleration measurements,

determining a subsequent tilt angle of the electric meter based on the subsequent acceleration measurements, and

comparing the initial tilt angle to the subsequent tilt angle.

12. The electric meter of claim 11, wherein the processor is further configured to receive the subsequent acceleration measurements at predetermined time intervals.

13. The electric meter of claim 12, wherein the processor is further configured to determine a tilt angle difference at the predetermined time intervals when the subsequent acceleration measurements from the accelerometer are received.

14. The electric meter of claim 11, wherein a tilt angle of the electric meter is an angle in a front-to-back direction with respect to a front face of the electric meter or an angle in a side-to-side direction with respect to the front face of the electric meter.

15. The electric meter of claim 11, wherein a tilt angle of the electric meter is an angle in a rotation direction around a vertical axis of the electric meter.

16. A system comprising:

a head-end system including a server; and

an electric meter in communication with the head-end system, the electric meter comprising:

an accelerometer configured to:

obtain initial acceleration measurements of the electric meter due to gravity;  
and

obtain subsequent acceleration measurements of the electric meter due to gravity over time; and

a processor in communication with the accelerometer, wherein the processor is configured to:

receive the initial acceleration measurements and the subsequent acceleration measurements from the accelerometer;

determine an initial orientation of the electric meter based on the initial acceleration measurements;

determine a subsequent orientation of the electric meter based on the subsequent acceleration measurements;

determine a difference between the initial orientation and the subsequent orientation based on the initial acceleration measurements and the subsequent acceleration measurements;

compare the difference to a threshold value;

determine that the difference exceeds the threshold value; and

based on the difference exceeding the threshold value, generate a notification of a change in orientation of the electric meter to the server of the head-end system.

17. The system of claim 16, wherein the processor is further configured to determine a difference between the initial orientation and the subsequent orientation by determining a difference between the initial acceleration measurements and the subsequent acceleration measurements.

18. The system of claim 16, wherein the processor is further configured to determine a difference between the initial orientation and the subsequent orientation by:

determining an initial tilt angle of the electric meter based on the initial acceleration measurements,

determining a subsequent tilt angle of the electric meter based on the subsequent acceleration measurements, and

comparing the initial tilt angle to the subsequent tilt angle.

19. The system of claim 18, wherein the processor is further configured to receive the subsequent acceleration measurements at predetermined time intervals.

20. The system of claim 19, wherein the processor is further configured to determine a tilt angle difference at the predetermined time intervals when the subsequent acceleration measurements from the accelerometer are received.