

WHAT IS CLAIMED IS:

1. A signal acquisition sensor array, comprising a connection layer, at least two types of sensor units, a signal acquisition circuit, and a signal line electrically connecting the sensor units with the signal acquisition circuit, wherein each type of the sensor units comprises:

a first vibration-proof substrate; and

a sensor element, in one-to-one correspondence with the first vibration-proof substrate and is disposed between the first vibration-proof substrate and the connection layer;

wherein the at least two types of sensor units are arranged in an array at intervals on the connection layer;

wherein a product of a vibration-proof property of the first vibration-proof substrate of one type of sensor unit, a sensitivity of the sensor element of the one type of sensor unit and a sensitivity of the corresponding signal acquisition circuit is twice or more times of a product of a vibration-proof property of the first vibration-proof substrate of another type of sensor unit, a sensitivity of the sensor element of the another type of sensor unit and a sensitivity of the corresponding signal acquisition circuit.

2. The signal acquisition sensor array according to claim 1, wherein a plurality of the sensor units share the signal acquisition circuit.

3. The signal acquisition sensor array according to claim 1, wherein
the signal acquisition sensor array comprises three types of sensor units,
a product of a vibration-proof property of the first vibration-proof substrate of a first type of sensor unit, a sensitivity of the sensor element of the first type of the sensor unit

and a sensitivity of the corresponding signal acquisition circuit is 2-20 times of a product of a vibration-proof property of the first vibration-proof substrate of a second type of sensor unit, a sensitivity of the sensor element of the second type of sensor unit and the sensitivity of the corresponding signal acquisition circuit, and

the product of the vibration-proof property of the first vibration-proof substrate of the second type of sensor unit, the sensitivity of the sensor element of the second type of sensor unit and the sensitivity of the corresponding signal acquisition circuit is 5-10 times of a product of a vibration-proof property of the first vibration-proof substrate of a third type of sensor unit, the sensitivity of the sensor element of the third type of sensor unit and the sensitivity of the corresponding signal acquisition circuit.

4. The signal acquisition sensor array according to claim 1, wherein different types of sensor units correspond to a same signal acquisition circuit.

5. The signal acquisition sensor array according to any one of claims 1-4, wherein the first vibration-proof substrate is made of a sponge with a pore characteristic parameter of 15PPI-60PPI.

6. The signal acquisition sensor array according to any one of claims 1-4, wherein the connection layer is also used as a second vibration-proof substrate; or each of the sensor units further comprises a second vibration-proof substrate separately disposed between the connection layer and the sensor element.

7. The signal acquisition sensor array according to claim 3, wherein

where vibration-proof properties of the first vibration-proof substrates of the at least two types of sensor units are different, a vibration-proof property of the second vibration-proof substrate is between a maximum value and a minimum value of the vibration-proof properties of the at least two types of first vibration-proof substrates.

8. The signal acquisition sensor array according to claim 6, wherein the second vibration-proof substrate is made of a sponge with a pore characteristic parameter of 25PPI-50PPI.

9. The signal acquisition sensor array according to any one of claims 1-4, wherein a length of the signal line is greater than a maximum extension length of the connection layer in an extension direction of the signal line between connection points at two ends of the signal line.

10. The signal acquisition sensor array according to any one of claims 1-4, wherein a sampling frequency of the signal acquisition circuit is not less than 40Hz.

11. The signal acquisition sensor array according to any one of claims 1-4, wherein the signal acquisition circuit has different sampling frequencies for different sensor units.

12. An electronic device, comprising a processor and the signal acquisition sensor array according to any one of claims 1-11.

13. A mattress, comprising a body and the signal acquisition sensor array according to any one of claims 1-11.