Claims

1. An electrode multiplexing physiological parameter monitoring ring, comprising a built-in power supply, a microprocessor module, an electrocardiogram monitoring analog front end, a skin conductance monitoring module, a first electrode, and a second electrode, the microprocessor module is connected to the electrocardiogram monitoring analog front end and the ~~skink~~skin conductance monitoring module, wherein

the first electrode and the second electrode are separately connected to the electrocardiogram monitoring analog front end, and the electrocardiogram monitoring analog front end processes electrocardiogram signals collected by the first electrode and the second electrode;

the first electrode and the second electrode are further separately connected to the skin conductance monitoring module, and the skin conductance monitoring module processes skin impedance signals collected by the first electrode and the second electrode; and

a coupling manner in which the first electrode and the second electrode are coupled to the electrocardiogram monitoring analog front end is direct current coupling or alternating current coupling, and is opposite to a coupling manner in which the first electrode and the second electrode are coupled to the skin conductance monitoring module~~.~~;

wherein the electrocardiographic monitoring analog front end is connected to the first electrode and the second electrode by direct current coupling, and the skin conductance monitoring module is connected to the first electrode and the second electrode by alternating current coupling, or

the electrocardiographic monitoring analog front end may be connected to the first electrode and the second electrode by alternating current coupling, while the skin conductance monitoring module may be connected to the first electrode and the second electrode by direct current coupling,

so that the electrocardiographic signal and the skin impedance signal collected by the first electrode and the second electrode will not interfere with each other

~~2. The electrode multiplexing physiological parameter monitoring ring according to claim 1,~~ wherein the ring further comprises a power supply management module connected to the microprocessor module, and the first electrode and the second electrode are separately connected to the built-in power supply through the power supply management module;

the power supply management module is configured to: when the first electrode and the second electrode are in contact with skin, form an open circuit between the first electrode and the built-in power supply, and when the first electrode and the second electrode are connected

to an external charger, form a closed-circuit between the first electrode and the built-in power supply; and

the microprocessor module is configured to: when the closed-circuit is formed between the first electrode and the built-in power supply, make the electrocardiogram monitoring analog front end and the skin conductance monitoring module stop working~~.~~, and

wherein the power supply management module comprises a third resistor, a fourth resistor, a bias voltage, and a voltage control switch, one end of the third resistor is connected to the first electrode and the voltage control switch, the other end of the third resistor is connected to the fourth resistor, and the other end of the fourth resistor is connected to the bias voltage; when the first electrode is in contact with the skin, the other end of the voltage control switch is connected to a connection point of the third resistor and the fourth resistor; and when the first electrode is connected to the external charger, the other end of the voltage control switch is connected to the built-in power supply.

~~3~~2. The electrode multiplexing physiological parameter monitoring ring according to claim 1~~ or 2~~, wherein the ring further comprises a third electrode connected to the electrocardiogram monitoring analog front end, the electrocardiogram monitoring analog front end processes electrocardiogram signals collected by the first electrode, the second electrode, and the third

electrode, and the third electrode is coupled to the electrocardiogram monitoring analog front end in a manner of direct current coupling.

~~4~~3. The electrode multiplexing physiological parameter monitoring ring according to claim 1~~ or 2~~, wherein the skin conductance monitoring module comprises a signal excitation module and a signal processing module.

~~5~~4. The electrode multiplexing physiological parameter monitoring ring according to claim ~~4~~3, wherein the signal excitation module comprises a current source, a first resistor, a second resistor, a first capacitor, and a second capacitor, one end of the first resistor is connected to the current source, the other end of the fist resistor is connected to the first capacitor, and the other end of the first capacitor is connected to the first electrode; and one end of the second resistor is connected to the current source, and the other end of the second resistor is connected to the second capacitor, and the other end of the second capacitor is connected to the second electrode.

~~6~~5. The electrode multiplexing physiological parameter monitoring ring according to claim ~~4~~3, wherein the signal excitation module generates an alternating current with a frequency higher than 32 kHz and amplitude lower than 100 μA.

~~7~~6. The electrode multiplexing physiological parameter monitoring ring according to claim ~~4~~3, wherein the signal processing module comprises a third capacitor, a fourth capacitor, a band-pass filter and a low-pass filter, one end of the third capacitor is connected to the first electrode, the other end of the third capacitor is connected to the band-pass filter, and the other end of the band-pass filter is connected to the low-pass filter; and one end of the fourth capacitor is connected to the second electrode, and the other end of the fourth capacitor is connected to the band-pass filter.

~~8. The electrode multiplexing physiological parameter monitoring ring according to claim 2, wherein the power supply management module comprises a third resistor, a fourth resistor, a bias voltage, and a voltage control switch, one end of the third resistor is connected to the first electrode and the voltage control switch, the other end of the third resistor is connected to the fourth resistor, and the other end of the fourth resistor is connected to the bias voltage; when the first electrode is in contact with the skin, the other end of the voltage control switch is connected to a connection point of the third resistor and the fourth resistor; and when the first electrode is connected to the external charger, the other end of the voltage control switch is connected to the~~

~~built-in power supply.~~

~~9~~7. The electrode multiplexing physiological parameter monitoring ring according to claim ~~8~~1, wherein the bias voltage is greater than 2V and less than 3.3 V.