CLAIMS

1. A multi-source hybrid power supply and distribution control system of a travel trailer, comprising a power source detection module, a combined logic controller, a PFC controller, an AC/DC converter, a DC/DC converter, an inverter boost circuit and a storage battery, wherein the power source detection module is connected with a power supply terminal and the storage battery, the power supply terminal is used for providing an alternating current and/or a direct current, the power source detection module comprises an alternating current analog signal output terminal and a direct current digital signal output terminal, the alternating current analog signal output terminal is connected with an input terminal of the PFC controller, the direct current digital signal output terminal is connected with an input terminal of the combined logic controller, and an output terminal of the PFC controller is connected with an alternating current electric appliance and an input terminal of the AC/DC converter; the combined logic controller is connected with the input terminal of the AC/DC converter and the storage battery; an output terminal of the AC/DC converter is connected with an input terminal of the DC/DC converter and an input terminal of the inverter boost circuit; an output terminal of the DC/DC convert is connected with a direct current electric appliance; and the storage battery is connected with the inverter boost circuit, and an output terminal of the inverter boost circuit is connected with the alternating current electric appliance;

wherein the power source detection module comprises a capacitor, a transformer, a diode, a resistor, a Hall voltage sensor, a transmitter, a rectifier and an AD converter, the capacitor is connected with an alternating current output terminal of the power supply terminal, a primary side of the transformer is connected with the capacitor, a secondary side of the transformer is connected with the diode and the resistor, an output terminal of the resistor is connected with the Hall voltage sensor, an output terminal of the Hall voltage sensor is connected with the transmitter, the transmitter comprises a first output terminal and a second output terminal, and the first output terminal is connected with the PFC controller; and the second output terminal is outputted to the combined logic controller through the rectifier and an analog-digital converter in sequence.

2. The multi-source hybrid power supply and distribution control system of the travel trailer according to claim 1, wherein a direct current output terminal of the power supply terminal is directly connected with the storage battery.

3. The multi-source hybrid power supply and distribution control system of the travel trailer according to claim 1, further comprising a system control module, wherein the system control module comprises a user operating terminal, a single-chip micro-controller, a voltage stabilizing circuit, a photoelectric coupler and a first relay, the user operating terminal is connected with the single-chip micro-controller, an output terminal of the single-chip micro-controller is connected with the voltage stabilizing circuit, an output terminal of the voltage stabilizing circuit is connected with the photoelectric coupler, an output terminal of the photoelectric coupler is connected with the first relay, and the first relay is used for controlling on-off of the alternating current electric appliance and/or the direct current electric appliance; and the single-chip micro-controller is used for sending an instruction signal for controlling on-off of the electric appliance according to an operation signal inputted at the user operating terminal.

4. The multi-source hybrid power supply and distribution control system of the travel trailer according to claim 1, wherein the storage battery comprises an original storage battery of the travel trailer and a storage battery for daily use.

5. The multi-source hybrid power supply and distribution control system of the travel trailer according to claim 1, further comprising an auxiliary power source, wherein the auxiliary power source is connected with the storage battery, and the auxiliary power source is a solar panel.

6. The multi-source hybrid power supply and distribution control system of the travel trailer according to claim 1, further comprising a fault detection and identification control module, wherein the fault detection and identification control module comprises a current sensor, a PLC controller, a second relay and an LED display lamp, the current sensor is connected with the combined logic controller, an output terminal of the current sensor is connected with an input terminal of the PLC controller, an output terminal of the PLC controller is connected with the second relay and the resistor, the second relay is used for controlling the storage battery to discharge, and the resistor is connected with the LED display lamp.