CLAIMS

1. An electrical protection apparatus, characterized in that it comprises:

a current transformer configured to detect a current in a loop;

a control circuit configured to determine whether an overload fault occurs in the loop according to the detected current;

a bistable state relay configured to perform a switching operation based on a signal from the control circuit; and

a socket module configured to be coupled with the current transformer, the control circuit and the bistable state relay and to be connected to a panel socket.

2. The electrical protection apparatus according to claim 1, characterized in that the electrical protection apparatus further comprises an alarm module configured to alarm an overload fault.

3. The electrical protection apparatus according to claim 2, characterized in that the control circuit is further configured to compare the detected current with a predetermined threshold, and send a trip signal to the bistable state relay when the detected current is higher than the predetermined threshold.

4. The electrical protection apparatus according to claim 3, characterized in that the alarm module is configured to alarm when the controller sends the trip signal to the bistable state relay.

5. The electrical protection apparatus according to claim 1, characterized in that the electrical protection apparatus further comprises a reset module configured to restore the bistable state relay to a normal working state.

6. An electrical protection apparatus, characterized in that it comprises:

a current transformer configured to detect a zero-sequence current in a loop;

a control circuit configured to determine whether a current leakage fault occurs in the loop according to the detected zero-sequence current;

a bistable state relay configured to perform a switching operation based on a signal from the control circuit; and

a socket module configured to be coupled with the current transformer, the control circuit and the bistable state relay and to be connected to a panel socket.

7. The electrical protection apparatus according to claim 6, characterized in that the control circuit is further configured to compare the detected zero-sequence current with a predetermined threshold, and send a trip signal to the bistable state relay when the detected zero-sequence current is higher than the predetermined threshold.

8. The electrical protection apparatus according to claim 6, characterized in that the

electrical protection apparatus further comprises a reset module configured to restore the bistable state relay to a normal working state.

9. An electrical protection apparatus, characterized in that it comprises:

a first current transformer configured to detect a current in a loop;

a second current transformer configured to detect a zero-sequence current in the loop;

a control circuit configured to determine whether an overload fault or a current leakage fault occurs in the loop according to the detected current and the detected zero-sequence current;

a bistable state relay configured to perform a switching operation based on a signal from the control circuit; and

a socket module configured to be coupled with the current transformer, the control circuit and the bistable state relay and to be connected to a panel socket.

10. The electrical protection apparatus according to claim 9, characterized in that the electrical protection apparatus further comprises an alarm device configured to alarm an overload or current leakage fault.

11. The electrical protection apparatus according to claim 9, characterized in that the control circuit is further configured to compare the detected current with a first threshold and compare the detected zero-sequence current with a second threshold, and send a trip signal to the bistable state relay when the detected current is higher than the first threshold or the detected zero-sequence current is higher than the second threshold.

12. The electrical protection apparatus according to claim 10, characterized in that the alarm device is configured to alarm when the controller sends the trip signal to the bistable state relay.

13. The electrical protection apparatus according to claim 9, characterized in that the electrical protection apparatus further comprises a reset module configured to restore the bistable state relay to a normal working state.