CLAIMS

1. An emergency self-propelled traction system for a multiple-unit train, comprising: a four-quadrant rectifier, a traction inverter, a traction motor, a high frequency isolated bidirectional DC/DC converter, a bidirectional DC/DC converter, and a power battery, wherein

an input terminal of the four-quadrant rectifier is electrically connected to an external alternating-current power grid, and an output terminal of the four-quadrant rectifier is connected to an input terminal of the traction inverter and a first terminal of the bidirectional DC/DC converter, a second terminal of the bidirectional DC/DC converter is connected to the power battery, and an output terminal of the traction inverter is connected to the traction motor, and wherein

if power is supplied from the external alternating-current power grid normally,

the four-quadrant rectifier is configured to convert an alternating-current voltage supplied from the external alternating-current power grid into a first direct-current voltage, and the traction inverter is configured to convert the first direct-current voltage into a target alternating-current voltage, and supply power to the traction motor by using the target alternating-current voltage; and

the high frequency isolated bidirectional DC/DC converter is configured to convert the first direct-current voltage into a second direct-current voltage, and the bidirectional DC/DC converter is configured to charge the power battery by using the second direct-current voltage,

if no power is supplied from the external alternating-current power grid,

the power battery is configured to supply power to the traction inverter via the bidirectional DC/DC converter and the high frequency isolated bidirectional DC/DC converter, to supply power to the traction motor; and

an auxiliary inverter and an auxiliary load, wherein

an input terminal of the auxiliary inverter is connected to a second terminal of the high frequency isolated bidirectional DC/DC converter, and the auxiliary load is connected to an output terminal of the auxiliary inverter.

2. The emergency self-propelled traction system for a multiple-unit train according to claim 1, further comprising: a DC/DC converter, a direct-current load, and a storage battery, wherein

an input terminal of the DC/DC converter is connected to the output terminal of the four-quadrant rectifier, and an output terminal of the DC/DC converter is connected to the direct-current load and the storage battery.

3. The emergency self-propelled traction system for a multiple-unit train according to claim 1, wherein

the first direct-current voltage ranges from 2700V to 3850V, the target alternating-current voltage is 2800V, the second direct-current voltage is 700V, the alternating-current voltage of the external alternating-current power grid is 25 kV, and an output voltage of the power battery is a direct-current voltage of 650V.

4. The emergency self-propelled traction system for a multiple-unit train according to claim 1, wherein

a voltage at the output terminal of the auxiliary inverter is an alternating-current voltage of 380V.

5. The emergency self-propelled traction system for a multiple-unit train according to claim 2, wherein

an output voltage of the storage battery is a direct-current voltage of 110V.