CLAIMS

1. A vehicle charging system comprising:

a plurality of chargers that charge vehicles; and

a charge control unit that controls a charging current of the charger, wherein

the charge control unit includes:

a first measurement unit that obtains current value information indicative of a current of received power from an electric energy meter that measures received high−voltage power;

a second measurement unit that obtains current value information indicative of a current of a transformer that transforms the received high−voltage power into low−voltage power and supplies the power to the charger; and

a third measurement unit that obtains current value information indicative of a current flowing a main breaker of a distribution board that supplies power to the charger, wherein

the charge control unit is configured to monitor and control:

a received current from the electric energy meter and obtained by the first measurement unit so that the received current does not exceed a predetermined first setting value,

a transformer current obtained by the second measurement unit so that the transformer current value does not exceed a predetermined second setting value, and

a main breaker current obtained by the third measurement unit so that the main breaker value does not exceed a predetermined third setting value,

wherein the control is performed by adjusting the charging current in response to a comprehensive determination of deviation information associated with the first measurement unit, the second measurement unit and the third measurement unit, and the comprehensive determination is being performed at a predetermined time interval, such that

when at least one of the deviation information associated with the first measurement unit, the second measurement unit and the third measurement unit is determined as positive, the charging current is reduced based on the largest deviation value by which any of the monitored currents exceeds its respective setting value, and

when increasing the charging current, the charging current is increased based on a margin value, wherein the margin value is set as the minimum among margin information associated with the first, second and third measurement units.

2. The vehicle charging system according to claim 1, wherein

the charge control unit is formed of:

a first control master unit that includes the first measurement unit and outputs deviation information of the received current with respect to the first setting value;

a second control master unit that includes the second measurement unit and outputs deviation information of the transformer current with respect to the second setting value;

a third control master unit that includes the third measurement unit and outputs deviation information of the main breaker current with respect to the third setting value; and

a control slave unit installed for each of the chargers to control the charging current based on the information output from the first control master unit, the second control master unit, and the third control master unit, and

the first control master unit, the second control master unit, the third control master unit, and control slave unit are separated from one another, wherein

the control slave unit performs control such that the received current value does not exceed the first setting value, the current value of the transformer does not exceed the second setting value, and the current value flowing the main breaker does not exceed the third setting value based on the deviation information transmitted from the first control master unit, the second control master unit, and the third control master unit.

3. The vehicle charging system according to claim 2, wherein

the first control master unit, the second control master unit, the third control master unit, and the control slave units wirelessly communicate with one another, and

the control slave units wirelessly obtain the deviation information from the first control master unit, the second control master unit, and the third control master unit.

4. The vehicle charging system according to claim 3, wherein

the first control master unit, the second control master unit, and the third control master unit grasp mutual transmissions of the deviation information to the control slave units such that each of the first control master unit, the second control master unit, and the third control master unit performs control so as not to cause a collision of the transmission of the individual deviation information to the control slave unit.