CLAIMS

1. A power supply method, whereinthe method comprises:

supplying, by a power supply device having a plurality of power supply ports, power to a load through a power supply port, wherein the power supply port is connected to a power receiving port of the load by using a power supply cable;

measuring, by the power supply device, an output power of each of the plurality of power supply ports;

determining, by the power supply device based on content of communication between the power supply device and the load through a corresponding communications port, that a power-obtaining power of the load increases by a target value;

searching for, by the power supply device, a power supply port whose output power increases by the target value, to obtain and record a correspondence between a power supply port coupled with an increasing load and a communications port coupled with the increasing load; and

managing a behavior of obtaining power by the load from the power supply device based on the correspondence and content of communication between the increasing load and the communications port coupled with the increasing load.

2. The power supply method according to claim 1, whereinthe communications port is connected to the communications port of the load by a communications cable.

3. The power supply method according to claim 1, whereinthe power supply device manages a behavior of obtaining power by the load from the power supply device, further comprising:

limiting, by the power supply device based on a first power threshold, a power at which the power supply port supplies power to the load;

sending, by the power supply device, a power indication to the load through the communications port, wherein the power indication carries a second power threshold, the second power threshold is less than the first power threshold, and wherein the power indication is used to indicate that the power at which the load obtains power from the power supply device is limited by the second power threshold; and

limiting, by the power supply device, based on the second power threshold, the power at which the power supply port supplies power to the load.

4. The power supply method of claim 3, whereinthe first power threshold is preset in the power supply device.

5. The power supply method according to claim 1, whereinthe supplying, by a power supply device, power to a load through a power supply port further comprises:

when the load is initially connected to the power supply port of the power supply device, limiting, by the power supply device based on an initial power threshold, a power at which the power supply port supplies power to the load; and

the power supply device managing a behavior of obtaining power by the load from the power supply device comprises:

obtaining, by the power supply device, a third power threshold based on the content of communication between the power supply device and the load through the communications port, wherein the third power threshold is greater than the initial power threshold; and

limiting, by the power supply device based on the third power threshold, the power at which the power supply port supplies power to the load.

6. The power supply method of claim 1, whereinthe power supply device temporarily supplies a low power to a load to provide sufficient energy to communicate with the power supply device when the load is initially connected to the power supply device.

7. A power supply device comprising:

a plurality of power supply ports;

a plurality of loads coupled to power supply ports;

a power measurement circuit configured for measuring an output power of each of the plurality of power supply ports;

a determining circuit configured for determining, based on communication between the power supply device and the coupled loads through corresponding communications ports, that power supplied to an increasing load increases by a target value;

a record circuit configured for searching for a power supply port whose output power increased by the target value, and obtaining and recording a correspondence between a power supply port coupled to the increasing load and a communications port coupled with the increasing load; and

a processor configured for managing, based on the correspondence and the communication between the increasing load and the communications port connected to the increasing load, the obtaining of power by the increasing load from a corresponding power supply port.

8. The power supply device of claim 7, whereinthe processor is further configured to:

limit, based on a first power threshold, the power a first power supply port supplies to a first load;

send a power indication to the first load through a first communications port, wherein the power indication carries a second power threshold, wherein the second power threshold is less than the first power threshold and indicates that the power supplied to the first load from the power supply device is limited by the second power threshold; and

limit, based on the second power threshold, the power the first power supply port supplies to the first load.

9. The power supply device of claim 7, whereinthe processor is further configured to:

limit, based on an initial power threshold, power a first power supply port supplies to a first load when the first load is initially connected to the first power supply port;

obtain a third power threshold based on communication between the power supply device and the first load through a first communications port, wherein the third power threshold is greater than the initial power threshold; and

limit, based on the third power threshold, the power the first power supply port supplies to the first load.

10. The power supply device of claim 9, whereinthe initial power threshold is preset in the power supply device.

11. The power supply device of claim 7, whereina communications port comprises an optical interface.

12. The power supply device of claim 7, whereina load comprises one or more of a camera, video monitor, electronic display board, or traffic intersection light.

13. The power supply device of claim 7, whereina power supply port and a power receiving port comprise pluggable wiring terminals.

14. The power supply device of claim 7, whereinthe power measurement circuit is integrated into a power supply circuit.

15. The power supply device of claim 7 further comprising;

a power supply cable coupling the power supply port to a power receiving port of the increasing load; and

a communications cable coupling the communication port of the power supply port to a communications port of the increasing load.

16. A computer program product comprisingcomputer-executable instructions stored on a non-transitory computer-readable medium that, when executed by a processor, cause a power supply apparatus to:

measure an output power of each of a plurality of power supply ports;

determine, based on communication between the power supply apparatus and a plurality of loads coupled to the power supply ports through corresponding communications ports, that power supplied to an increasing load increases by a target value;

search for a power supply port having an output power increased by the target value;

obtain and record a correspondence between a power supply port coupled with the increasing load and a communications port coupled with the increasing load; and

manage, based on the correspondence and communication between the increasing load and the communications port coupled with the increasing load, an obtaining of power by the increasing load from the power supply port connected to the increasing load.

17. The computer program product of claim 16, whereinthe computer-executable instructions, when executed by a processor, cause the power supply apparatus to:

limit, based on an initial power threshold, a power the first power supply port supplies to the first load when the first load is initially connected to the first power supply port;

obtain a third power threshold based on the communication between the power supply apparatus and the first load through the first communications port, wherein the third power threshold is greater than the initial power threshold; and

limit, based on the third power threshold, the power the first power supply port supplies to the first load.

18. The computer program product of claim 16, whereinthe computer-executable instructions, when executed by a processor, cause the power supply apparatus to temporarily supply a low power to a load to provide sufficient energy to communicate with the power supply apparatus when the load is initially connected to the power supply apparatus.

19. The computer program product of claim 16, whereinthe computer-executable instructions, when executed by a processor, cause the power supply apparatus to:

limit, based on a first power threshold, the power the first power supply port supplies to the first load;

send a power indication to the first load through the first communications port, wherein the power indication carries a second power threshold, and wherein the second power threshold is less than the first power threshold and indicates that the power supplied to the first load from the power supply apparatus is limited by the second power threshold; and

limit, based on the second power threshold, the power the power first supply port supplies to the first load.

20. The computer program product of claim 16, whereinthe computer-executable instructions, when executed by a processor, cause the power supply apparatus to preset the first power threshold in the power supply device.