

TITLE

ENERGY MANAGEMENT SYSTEM

TECHNICAL FIELD

[0001] The present disclosure relates to an energy management system.

5 BACKGROUND

[0002] There is a known system having a status monitoring control unit as a master unit for monitoring each breaker and each breaker having a slave unit. In this system, the master unit performs ON/OFF control of each breaker or notification of the status by power line communication
10 through a power line including an electrical path bar (see, for example, Japanese Unexamined Patent Publication No. 2007-166892).

SUMMARY

[0003] Here, in an energy management system that manages energy in an area including predetermined control target equipment, slave units
15 are provided in the control target equipment such as a light and an air conditioner, and a master unit transmits control signals to these slave units. In such an energy management system, not only the master unit receives information from the slave units as in Japanese Unexamined Patent Publication No. 2007-166892 described above, but also power
20 line communication from the master unit to the slave units is performed. In this case, due to the transmission of signals on the power line, the signals may overlap, which may complicate the system. Therefore, there has been a demand for an energy management system capable of improving the reliability of communication by suppressing such signal
25 overlap.

[0004] It is an object of the disclosure to provide an energy

management system capable of improving the reliability of communication.

[0005] An energy management system according to an aspect of the disclosure includes: a control slave unit provided for control target equipment; and a master unit that transmits a control signal to the control slave unit. Power line communication is performed between the control slave unit and the master unit. The master unit is installed in power distribution equipment that serves as a base point of an electrical path for a plurality of the control slave units within a control range of the master unit.

[0006] In the energy management system according to the aspect of the disclosure, the master unit transmits a control signal to the control slave unit provided for the control target equipment. In addition, power line communication is performed between the control slave unit and the master unit. Therefore, a control signal from the master unit to the control slave unit flows through the power line connecting the master unit and the control slave unit to each other. Here, the master unit is installed in the power distribution equipment that serves as a base point of the electrical path for a plurality of control slave units within the control range of the master unit. Therefore, since the flow of the control signal from the master unit is unified into the flow from the base point in the electrical path to each control slave unit, the formation of the flow of the control signal to the base point side is suppressed. As a result, the occurrence of signal overlap in the electrical path is suppressed. As described above, it is possible to improve the reliability of communication in the energy management system.

[0007] The master unit may have all the control slave units provided in the building as its control range, and the master unit is installed in power distribution equipment for an entire building. When the master unit controls the control slave units in the entire building, the base point of the electrical path is the power distribution equipment for the entire building. By installing the master unit in the power distribution equipment, it is possible to suppress the occurrence of signal overlap in the electrical path.

[0008] The master unit may have the control slave unit provided on a predetermined floor in the building as its control range, and the master unit is installed in power distribution equipment for the floor in a building. When the master unit controls the control slave unit on the predetermined floor in the building, the base point of the electrical path is the power distribution equipment for the floor in the building. By installing the master unit in the power distribution equipment, it is possible to suppress the occurrence of signal overlap in the electrical path.

[0009] According to the disclosure, it is possible to provide an energy management system capable of improving the reliability of communication.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a block configuration diagram showing an energy management system according to an embodiment of the disclosure.

FIG. 2(a) is a block configuration diagram of a detection slave unit, FIG. 2(b) is a block configuration diagram of a control slave unit, and FIG. 2(c) is a block configuration diagram of a master unit.

FIG. 3 is a schematic configuration diagram showing an example of the energy management system according to the embodiment.

FIG. 4 is a schematic configuration diagram showing an example of an energy management system according to a comparative example.

FIG. 5 is a schematic configuration diagram showing an example of an energy management system according to a modification example.

DETAILED DESCRIPTION

[0011] Hereinafter, an embodiment of the disclosure will be described in detail with reference to the accompanying diagrams. In the description of the diagrams, the same or equivalent elements are denoted by the same reference numerals, and repeated description thereof will be omitted.

[0012] FIG. 1 is a block configuration diagram showing an energy management system 100 according to an embodiment of the disclosure. As shown in FIG. 1, the energy management system 100 is a system for managing energy in a management target area including predetermined control target equipment 3. The energy management system 100 includes a detector 1, a detection slave unit 2, control target equipment 3, a control slave unit 4, and a master unit 6. For example, the energy management system 100 may be applied to, for example, a building BD having a plurality of floors F1 to F3 (see FIG. 3).

[0013] In the energy management system 100, the detector 1 and the detection slave unit 2 are connected to each other by a wiring W1. The

detection slave unit 2 and the master unit 6 are connected to each other by a power line W2. The control target equipment 3 and the control slave unit 4 are connected to each other by a wiring W3. The control slave unit 4 and the master unit 6 are connected to each other by a power line W4. In the energy management system 100, information is transmitted between devices by power line communication (PLC communication). The power line communication is, for example, a communication method for transmitting and receiving communication signals using a power line, in which a power waveform having a commercial frequency and a communication signal having a frequency different from the commercial frequency are superimposed and transmitted and a communication signal having a different frequency is separated from the power waveform and received. In addition, the power line communication may be subject to the Radio Law depending on its frequency band. However, in the energy management system 100 according to the present embodiment, power line communication in a frequency band of, for example, 100 KHz to 450 KHz may be used in order to be able to be used indoors and outdoors and to realize a certain degree of data transfer. However, power line communication in a frequency band higher or lower than the above-described frequency band is also available. For example, the frequency band may be 10 KHz or less, or may be 2 MHz or more. In addition, assuming that the power line communication in the frequency band of 100 KHz to 450 KHz is used, the modulation method is not particularly limited, and accordingly, the OFDM method may be adopted or the DCSK method may be adopted. The power line is a wiring for supplying AC power

having a commercial frequency as a main purpose, and serves as a transmission line for performing power line communication. Specifically, power line communication is performed between the detection slave unit 2 and the master unit 6, and between the control slave unit 4 and the master unit 6. Power line communication is performed between the detector 1 and the detection slave unit 2 and between the control target equipment 3 and the control slave unit 4. In the power line communication, not only communication signals can be superimposed for AC power distribution of AC 100V, AC 200V, or the like, but also communication signals can be superimposed for DC power distribution as in the case of AC power distribution. When the detector 1 is, for example, a motion sensor or an illuminance meter, the signal from the detector 1 may once pass through the master unit 6 and power line communication with the control slave unit 4 may be performed based on the determination of the master unit 6. However, depending on the program of the master unit 6, the detection slave unit 2 may exchange commands with the control slave unit 4 by using power line communication without passing through the master unit 6.

[0014] The detector 1 is a device that detects various kinds of information, and is a measuring instrument, a sensor, and the like. As the detector 1, for example, a motion sensor for detecting the presence of a person, an illuminance meter for detecting the brightness of a room, and an ammeter for detecting a current value are adopted. The detector 1 outputs detection information to the detection slave unit 2 through the wiring W1. In addition, the detector 1 is not limited to the above-described devices, and other measuring instruments or sensors

may be adopted. For example, a measuring instrument for monitoring the amount of power generation relevant to renewable energy such as a solar cell may be adopted as the detector 1. In addition, a battery level data output unit installed in a power controller for a fixed storage battery, a vehicle-mounted storage battery, and the like may be used as the detector 1. In addition, a carbon dioxide detector, a carbon monoxide detector, a dust detector, and the like may be used as the detector 1.

[0015] The detection slave unit 2 is a slave unit provided for the detector 1. The detection slave unit 2 converts detection information received from the detector 1 into a power line communication signal, and outputs the power line communication signal to the master unit 6 through the power line W2. The detection slave unit 2 is provided in a one-to-one correspondence with one detector 1. For example, when a plurality of detectors 1 are present on the floor, one detection slave unit 2 is provided for each detector 1. For example, the dedicated detection slave unit 2 is provided for the ammeter, the dedicated detection slave unit 2 is provided for the motion sensor, and the dedicated detection slave unit 2 is provided for the illuminance meter. When there are a plurality of motion sensors, one dedicated detection slave unit 2 is provided for each motion sensor. The detection slave unit 2 is provided at a location close to the target detector 1. Since the detection slave unit 2 is provided on the power line connected to the target detector 1, a physical one-to-one relationship is established between the detection slave unit 2 and the target detector 1. In addition, the detection slave unit 2 and the detector 1 may be

constructed as one device. In this case, a unit that functions as the detection slave unit 2 and a unit that functions as the detector 1 are provided in one device. In addition, both the units are connected to each other by the wiring W1 in one device. The wiring W1 that connects the detector 1 and the detection slave unit 2 to each other is a signal line. In addition, the detection slave unit 2 and the detector 1 do not necessarily need to have a one-to-one relationship. For example, a configuration in which information is transmitted from a plurality of detectors 1 to one detection slave unit 2 may be adopted.

[0016] A detailed block configuration of the detection slave unit 2 will be described with reference to FIG. 2(a). The detection slave unit 2 includes a communication unit 11, a processing unit 12, and a storage unit 13. The communication unit 11 is a unit for communicating with the master unit 6 and the detector 1. The communication unit 11 has a circuit for receiving the detection information from the detector 1. In addition, the communication unit 11 has a circuit for converting the detection information from the detector 1 into a signal for power line communication with the master unit 6. The processing unit 12 is a unit for controlling the operation of the entire detection slave unit 2. The processing unit 12 includes a microprocessor, peripheral circuits thereof, and the like.

[0017] The storage unit 13 is a unit that stores programs necessary for the operation of the detection slave unit 2, information necessary for the operation, and the like. The storage unit 13 includes, for example, a non-volatile storage element such as a ROM (read only memory), a rewritable non-volatile storage element such as an EEPROM

(electrically erasable programmable read only memory), and a volatile storage element such as a RAM (random access memory) serving as a working memory. For example, the storage unit 13 stores an address indicating the location of the detection slave unit 2 in the building BD.

[0018] The control target equipment 3 is equipment to be controlled by the energy management system 100. As the control target equipment 3, for example, a light (LED light or the like) capable of adjusting the illuminance in the room, an air conditioner for adjusting the temperature in the room, and a storage battery for which discharge and charge are adjusted are adopted. The control target equipment 3 receives control information from the control slave unit 4 through the wiring W3. In addition, the control target equipment 3 is not limited to the above-described equipment, and other kinds of equipment may be adopted.

[0019] The control slave unit 4 is a slave unit provided for the control target equipment 3. The control slave unit 4 converts the control information based on the power line communication signal received from the master unit 6 into a signal that can be processed by the control target equipment 3, and outputs the control information to the control target equipment 3 through the wiring W3. The control slave unit 4 is provided in a one-to-one correspondence with one control target equipment 3. For example, when a plurality of pieces of control target equipment 3 are present on the floor, one control slave unit 4 is provided for each piece of control target equipment 3. In the example shown in FIG. 3, one dedicated control slave unit 4 is provided for each of a plurality of lights. The control slave unit 4 is provided at a location

close to the control target equipment 3 as a target. Since the control slave unit 4 is provided on the power line connected to the control target equipment 3 as a target, a physical one-to-one relationship is established between the control slave unit 4 and the control target equipment 3 as a target. In addition, the control slave unit 4 and the control target equipment 3 may be constructed as one device. For example, an LED light with a slave unit may be adopted. In this case, a unit that functions as the control slave unit 4 and a unit that functions as the control target equipment 3 are provided in one device. In addition, both the units are connected to each other by the wiring W3 in one device. The control slave unit 4 may be provided on the same power line to which the control target equipment as a target is connected, and in this case, the wiring W3 is a power line. Alternatively, the control slave unit 4 may be connected to a power line different from the control target equipment as a target, and in this case, the wiring W3 is a signal line. In addition, the control slave unit 4 and the control target equipment 3 do not necessarily need to have a one-to-one relationship. For example, a configuration in which a plurality of pieces of control target equipment 3 receive control information from one control slave unit 4 may be adopted.

[0020] The control slave unit 4 adjusts the strength of the output of the control target equipment 3 based on the control information from the master unit 6. For example, the control slave unit 4 can generate a command signal for the light so as to adjust the intensity of the illuminance of the light. The control slave unit 4 can generate a command signal for the air conditioner so as to adjust the strength of the

output of the air conditioner.

[0021] A detailed block configuration of the control slave unit 4 will be described with reference to FIG. 2(b). The control slave unit 4 includes a communication unit 14, a processing unit 16, and a storage unit 17. The communication unit 14 is a unit for communicating with the master unit 6 and the control target equipment 3. The communication unit 14 has a circuit for receiving control information based on the power line communication signal from the master unit 6. In addition, the communication unit 14 has a circuit for converting the power line communication signal from the master unit 6 into a signal that can be processed by the control target equipment 3. The processing unit 16 is a unit for controlling the operation of the entire control slave unit 4. The processing unit 16 includes a microprocessor, peripheral circuits thereof, and the like. The storage unit 17 is a unit that stores programs necessary for the operation of the control slave unit 4, information necessary for the operation, and the like. The storage unit 17 may include a storage element similar to that exemplified in the storage unit 13. For example, the storage unit 17 stores an address indicating the location of the control slave unit 4 in the building BD.

[0022] The master unit 6 is a device that receives detection information from the detection slave unit 2 and transmits control information (control signal) to the control slave unit 4 based on the detection information. The master unit 6 receives the detection information based on the power line communication signal from the detection slave unit 2 through the power line W2. The master unit 6 outputs control information based on the power line communication signal to the

control slave unit 4 through the power line W4. The master unit 6 calculates the control information of each piece of control target equipment 3 based on at least one of the setting content set in advance and the detection information detected by the detector 1.

[0023] A detailed block configuration of the master unit 6 will be described with reference to FIG. 2(c). The master unit 6 includes a communication unit 21, a processing unit 22, and a storage unit 23. The communication unit 21 is a unit for communicating with the detection slave unit 2 and the control slave unit 4. The communication unit 21 has a circuit for performing power line communication with the detection slave unit 2 and the control slave unit 4. In addition, the communication unit 21 has a circuit for performing remote communication using a cloud with an external communication device. That is, the communication unit 21 of the master unit 6 includes a PLC communication unit for power line communication with the detection slave unit 2 and the control slave unit 4 and a wireless communication unit for network communication with the cloud side, such as LTE. The processing unit 22 is a unit for controlling the operation of the entire master unit 6. The processing unit 22 includes a microprocessor, peripheral circuits thereof, and the like. The processing unit 22 calculates control information for controlling ON/OFF switching of each light and each air conditioner, adjustment of output strength, and the like.

[0024] The storage unit 23 is a unit that stores programs necessary for the operation of the master unit 6, information necessary for the operation, and the like. The storage unit 23 may include a storage

element similar to that exemplified in the storage unit 13. For example, the storage unit 23 stores the addresses indicating the locations of the master unit 6, each detection slave unit 2, and each control slave unit 4 in the building BD so as to be associated with each other.

5 [0025] Here, the master unit 6 is installed in power distribution equipment 50 that serves as a base point of the electrical path for a plurality of control slave units 4 and the detection slave unit 2 within the control range of the master unit 6. The power distribution equipment 50 is equipment for distributing and supplying the power to a plurality
10 of control slave units 4 and the detection slave unit 2 present in the control range of the master unit 6. Examples of the power distribution equipment 50 include a distribution board and a cubicle provided for the building BD. The base point of the electrical path is the most upstream place of the power flow in the wiring network of the power line in
15 which the plurality of control slave units 4 and the detection slave unit 2 are present within the control range. That is, even if another distribution board is present in the middle of the wiring network, the distribution board does not correspond to the base point of the electrical path. The state in which the master unit 6 is installed in the power
20 distribution equipment 50 is a state in which the master unit 6 is provided in the wiring structure of the power line of the power distribution equipment 50. In addition, in a state in which the master unit 6 is installed in the power distribution equipment 50, the master unit 6 is electrically connected to the power line inside the power
25 distribution equipment 50. When the power distribution equipment 50 has a power line drawn out from the housing in a state in which the

power line is branched into a plurality of power lines, the master unit 6 is connected to each power line in such a manner that a power line communication signal can be superimposed on each branched power line. When such an electrical connection relationship is established, the arrangement of the main body of the master unit 6 is not particularly limited. Specifically, the main body of the master unit 6 may be arranged inside the housing of the power distribution equipment 50 (for example, the housing of the cubicle 20 described later), and the master unit 6 may be connected to the wiring structure inside the housing of the power distribution equipment 50. Alternatively, the main body of the master unit 6 may be arranged outside the housing of the power distribution equipment 50, and the master unit 6 may be connected to the wiring structure inside the housing of the power distribution equipment 50. In this case, the main body of the master unit 6 may be attached to the outside of the door surface or the side surface of the power distribution equipment 50, and the wiring of the master unit 6 may be inserted from the hole formed in the housing and connected to the wiring structure inside the housing of the power distribution equipment 50.

[0026] Next, an example of the energy management system 100 will be described with reference to FIG. 3. FIG. 3 shows an example in which the energy management system 100 is adopted for an equipment system 101 in the building BD having a plurality of floors F1 to F3. In FIG. 3, the detector 1 and the detection slave unit 2 are omitted. The equipment system 101 shown in FIG. 3 includes a cubicle 20 outside the building BD. In addition, the equipment system 101 includes

distribution boards 10A, 10B, and 10C on the respective floors F1, F2, and F3.

[0027] The cubicle 20 is equipment containing a device that converts a high voltage from a power plant into a voltage that can be used in a facility. The cubicle 20 is configured to include a transformer 31 for converting a voltage, a plurality of (here, three) breakers 32 for cutting off an overcurrent, and other devices. The transformer 31 is connected to a power line W5 through which a high-voltage current from the power plant flows. In addition, the transformer 31 is connected to each of the three breakers 32 through a power line W6 in the housing of the cubicle 20. The three power lines W6 connected to the three breakers 32 are drawn out from the housing of the cubicle 20, extend into the building BD, and are connected to the distribution boards 10A, 10B, and 10C on the respective floors. The circuit breaker 32 for the first floor is connected to the distribution board 10A on the floor F1 through a power line W7. The circuit breaker 32 for the second floor is connected to the distribution board 10B on the floor F2 through the power line W7. The circuit breaker 32 for the third floor is connected to the distribution board 10C on the floor F3 through the power line W7.

[0028] Each of the distribution boards 10A, 10B, and 10C is electrical equipment for dividing the power transmitted through the power line W7 into power for each load circuit provided on the floor. Each of the distribution boards 10A, 10B, and 10C has a structure in which a breaker for wiring, an earth leakage breaker, and the like collectively mounted and wired. The distribution board 10A on the first floor supplies the power so as to be divided into power for each of a plurality

of (here, three) power lines W8. A plurality of control slave units 4 and a plurality of pieces of control target equipment 3 (here, lights) are connected to each power line W8. In addition, load equipment 7 for which no control slave unit 4 is provided is connected to some of the power lines W8. Each of the floors F2 and F3 has a wiring structure of the power line W8, the control slave unit 4, the control target equipment 3, and the load equipment 7 having the same purpose as for the floor F1. [0029] In the example shown in FIG. 3, the master unit 6 has a plurality of control slave units 4 and the detection slave unit 2 in the entire building BD as its control range. Specifically, the master unit 6 has a plurality of control slave units 4 and the detection slave unit 2 on each of the floors F1, F2, and F3 as its control range. In this case, the cubicle 20 that is power distribution equipment for the entire building BD corresponds to the power distribution equipment 50 that serves as a base point of the electrical path for the plurality of control slave units 4 and the detection slave unit 2 within the control range of the master unit 6. That is, the electrical paths for the plurality of control slave units 4 and the detection slave unit 2 on the respective floors F1, F2, and F3 include a plurality of power lines W8 on the floors F1, F2, and F3, the distribution boards 10A, 10B, and 10C for the power lines W8, and each power line W7. Therefore, the cubicle 20 corresponds to the power distribution equipment 50 that is the most upstream of the flow of power with respect to these electrical paths.

[0030] In the cubicle 20, the master unit 6 is provided in the middle of the three power lines W6 between the transformer 31 and the three breakers 32. Therefore, when the master unit 6 transmits a control

signal SG to the control slave unit 4 on the third floor F3, the control signal SG reaches the control slave unit 4 through the power line W6, the breaker 32, the power line W7, the distribution board 10C, and the power line W8 corresponding to the third floor. When the master unit 6 transmits the control signal SG to the control slave units 4 on the other floors F1 and F3, the master unit 6 transmits the control signal SG through the electrical paths corresponding to the floors F1 and F3.

[0031] Next, the function and effect of the energy management system 100 according to the present embodiment will be described.

[0032] First, an energy management system 200 according to a comparative example will be described with reference to FIG. 4. In the energy management system 200 according to the comparative example, the master unit 6 has all the control slave units 4 provided in the building BD as its control range. On the other hand, the master unit 6 is installed on the distribution board 10A on the first floor F1. That is, the master unit 6 is not installed in the power distribution equipment 50, which is a base point of the electrical path for the entire building BD.

[0033] For example, when the master unit 6 transmits the control signal SG to the control slave unit 4 on the third floor F3, the control signal SG flows through the power line W7, the breaker 32, and the power line W6 connected to the distribution board 10A on the first floor. Then, the control signal SG flows to the control slave unit 4 through the power line W6, the breaker 32, the power line W7, the distribution board 10C, and the power line W8 corresponding to the third floor. Here, on the power line W7 corresponding to the first floor, the flow of the control

signal SG toward the cubicle 20, which is a base point, is formed. In this case, when a signal flowing from the cubicle 20 side to the master unit 6 is generated, signal overlap occurs in the power line W7 corresponding to the first floor (or the breaker 32 and the power line W6 corresponding to the first floor in the cubicle 20). For example, when a detection signal from the detection slave unit 2 to the master unit 6 is generated from the second floor F2, a detection signal from the cubicle 20 to the master unit 6 and a control signal from the master unit 6 to the cubicle 20 overlap each other on the power line W7 corresponding to the first floor. For this reason, in the equipment system 101, the circuit for transmitting the control signal SG becomes complicated.

[0034] On the other hand, in the energy management system 100 according to the present embodiment, the master unit 6 transmits a control signal to the control slave unit 4 provided for the control target equipment 3. In addition, power line communication is performed between the control slave unit 4 and the master unit 6. Therefore, a control signal from the master unit 6 to the control slave unit 4 flows through the power line connecting the master unit 6 and the control slave unit 4 to each other. Here, the master unit 6 is installed in the power distribution equipment 50 that serves as a base point of the electrical path for a plurality of control slave units 4 within the control range of the master unit 6. Therefore, since the flow of the control signal from the master unit 6 is unified into the flow from the base point in the electrical path to each control slave unit 4, the formation of the flow of the control signal to the base point side is suppressed. As a result, the occurrence of signal overlap in the electrical path is

suppressed. For example, when the control signal SG flows from the cubicle 20 to the third floor F3 as shown in FIG. 3, even if a detection signal from the detection slave unit 2 to the master unit 6 is generated from the second floor F2, both the signals do not overlap each other.

As described above, it is possible to improve the reliability of communication in the energy management system 10.

[0035] The master unit 6 may have all the control slave units 4 provided in the building BD as its control range, and the master unit 6 is installed in power distribution equipment 50 for an entire building BD.

In this case, when the master unit 6 controls the control slave units 4 in the entire building BD, it is possible to suppress the occurrence of signal overlap in the electrical path.

[0036] The disclosure is not limited to the embodiment described above.

[0037] For example, the arrangement or positions of the control slave unit 4 and the load equipment 7 on each floor shown in FIG. 3 are not particularly limited and may be changed as appropriate.

[0038] In addition, a configuration shown in FIG. 5 may be adopted.

In FIG. 5, the master unit 6 has the control slave unit 4 provided on a predetermined floor (here, floor F3) in the building BD as its control range. Here, the distribution board 10C for the floor F3 in the building BD serves as a base point of the electrical path. That is, the distribution board 10C corresponds to the power distribution equipment 50 that serves as a base point of the electrical path. Therefore, the master unit 6 is installed in the power distribution equipment 50 that serves as a base point of the electrical path.

[0039] According to such a configuration, since the flow of the control signal from the master unit 6 is unified into the flow from the base point in the electrical path to each control slave unit 4 on the floor F3, the formation of the flow of the control signal to the base point side is suppressed. As a result, the occurrence of signal overlap in the electrical path is suppressed. For example, when the control signal SG flows from the distribution board 10C to the control slave unit 4 on the floor F3 as shown in FIG. 5, even if a detection signal from the detection slave unit 2 on the floor F3 to the master unit 6 is generated, both the signals do not overlap each other. As described above, it is possible to improve the reliability of communication in the energy management system 10.

[0040] In addition, according to the configuration shown in FIG. 5, when the master unit 6 controls the control slave unit 4 on a predetermined floor in the building BD, it is possible to suppress the occurrence of signal overlap in the electrical path.

REFERENCE SIGNS LIST

[0041] 3: control target equipment, 4: control slave unit, 6: master unit, 50: power distribution equipment, 100: energy management system.

WHAT IS CLAIMED IS:

1. An energy management system, comprising:
a control slave unit provided for control target equipment; and
a master unit that transmits a control signal to the control slave
unit,

wherein power line communication is performed between the
control slave unit and the master unit, and

the master unit is installed in power distribution equipment that
serves as a base point of an electrical path for a plurality of the control
slave units within a control range of the master unit.

2. The energy management system according to claim 1,
wherein the master unit has all the control slave units provided
in the building as its control range, and the master unit is installed in
power distribution equipment for an entire building.

3. The energy management system according to claim 1,
wherein the master unit has the control slave unit provided on a
predetermined floor in the building as its control range, and the master
unit is installed in power distribution equipment for the floor in a
building.