

CLAIMS

What is claimed:

1. A lighting control sub-system comprising
 - a luminaire;
 - a controller coupled to the luminaire;
 - a sensor coupled to the controller, the sensor generating a sensed input;
 - a communication interface, the communication interface coupling the controller to an external device;
 - a power monitoring unit operative to measure power usage of the lighting control sub-system;
 - wherein the controller is operative to:
 - control a light output of the luminaire based at least in part on the sensed input; ~~and~~
 - communicate at least one of state or sensed information to the external device; and
 - communicate the measured power usage of the sub-system to the external device.
2. The sub-system of claim 1, wherein the controller is further operative to receive information from the external device, wherein the received information influences a current state of the lighting control sub-system, or the received information includes parameters that influence a future state of the lighting control sub-system.
3. The sub-system of claim 1, wherein the controller is further operative to receive information from the external device, wherein the received information influences a lighting control sub-system profile.
4. The sub-system of claim 3, wherein the lighting control sub-system profile comprises parameters, wherein the parameters are adaptively updated.

5. The sub-system of claim 3, further comprising the controller operative to receive a plurality of lighting control sub-system profiles.
6. The sub-system of claim 5, wherein an active profile of the plurality of lighting control sub-system profiles is adaptively updated.
7. The sub-system of claim 5, further comprising the external device adding, replacing or deleting one or more profiles of the plurality of lighting control sub-system profiles.
8. The sub-system of claim 1, wherein the external device comprises a central controller, another lighting control sub-system, a logical group controller, or a terminal.
9. The sub-system of claim 1, further comprising a plurality of sensors, wherein the controller is operative to control the light output based on a combination of sensed inputs of the plurality of sensors.
10. The sub-system of claim 9, further comprising the controller operative to control the light output based on the combination of one or more of the sensed inputs and a lighting schedule.
11. The sub-system of claim 1, wherein further comprising the controller operative to receive a lighting control configuration.
12. The sub-system of claim 11, wherein the controller receives the lighting control configuration from a central controller, thereby allowing a system user to manage the lighting control configuration.
13. The sub-system of claim 1, further comprising the controller operative to collect sensor values over time based on at least the sensed input.

14. The sub-system of claim 13, further comprising the controller operative to communicate the collected sensor values to the external device.
15. The sub-system of claim 13, further comprising the controller operative to identify problems of operation of the lighting control sub-system based on the collected sensor values, and to report the identified problems of operation to the external device.
16. The sub-system of claim 1, further comprising the controller operative to report past operating characteristics of the sub-system.
- ~~17. The sub-system of claim 1, wherein the sensor comprises a power monitoring unit operative to measure power usage of the lighting control sub-system.~~
- ~~18. The sub-system of claim 17, further comprising the controller operative to communicate the measured power usage of the sub-system to the external device.~~
- ~~19.~~17. The sub-system of claim 1, further comprising the controller operative to communicate with other sub-systems, and identify logical groups of two or more sub-systems.
- ~~20.~~18. The sub-system of claim ~~19~~17, wherein identifying logical groups comprises at least the controller and at least one of the other sub-systems auto-determining the logical group.
- ~~21.~~19. The sub-system of claim ~~19~~17, wherein at least one of the logical groups includes a motion sensing group.
- ~~22.~~20. The sub-system of claim ~~19~~17, wherein at least one of the logical groups includes an ambient light group.

- ~~23.21.~~ The sub-system of claim ~~19~~17, wherein at least one of the logical groups includes a logical switch group.
- ~~24.22.~~ The sub-system of claim ~~19~~17, wherein at least one of the logical groups includes a logical temperature group.
- ~~25.23.~~ The sub-system of claim ~~19~~17, further comprising the controller operative to control the light output based on a sensor signal of a sensor of another sub-system of a common logical group.
- ~~26.24.~~ The sub-system of claim ~~19~~17, wherein sub-systems of a common logical group communicate to each other when a sensor of one of the sub-systems of the logical group has failed.
- ~~27.25.~~ The sub-system of claim 1, further comprising the controller operative to identify an emergency condition, and initiate an emergency mode.
- ~~26.~~ The sub-system of claim ~~27~~25, further comprising the controller operative to confirm the identification of the emergency mode, comprising the controller initiating communication with a non-emergency device, and confirming the identified emergency condition if the initiated communication is not successful.
27. A lighting control system comprising
a plurality of sub-systems,
each sub-system comprising:
_____ a luminaire;
_____ a controller coupled to the luminaire;
_____ at least one sensor coupled to the controller, the at least one sensor generating a
sensed input;
_____ a communication interface, the communication interface coupling the controller to
an external device;

wherein the controller is operative to:

control a light output of the luminaire; and

communicate at least one of state or sensed information to at least one of a central controller or another sub-system;

receive a demand response from an external power company, and adaptively communicate to the plurality of sub-systems to operate in a reduced power mode.

28. A lighting control system comprising:

a central controller;

a plurality of sub-systems, wherein each sub-system is capable of independent action and each sub-system capable of acting responsive to said central controller,

each sub-system comprising:

a luminaire;

a controller coupled to the luminaire;

at least one sensor coupled to the controller, the at least one sensor generating a sensed input;

a communication interface, the communication interface coupling the controller to at least one of the central controller or another sub-system;

wherein the controller is operative to:

control a light output of the luminaire; and

communicate at least one of state or sensed information to at least one of the central controller or another sub-system;

receive sensed values and sub-system state information for one or more of the plurality of sub-systems; and

aggregate and display the received sensed values of the one or more of the plurality of sub-systems.