CLAIMS

[Claim 1]

A detecting method adopted by an LED straight tube lamp for preventing a user from electric shock when the LED straight tube lamp is being installed on a lamp socket, the detecting method comprising:

a step which generates a first pulse signal with a detection pulse generating module constituted in the aforementioned LED straight tube lamp;

a step which receives said first pulse signal through a detection result latching circuit by a switch circuit on a power supply loop of the aforementioned LED straight tube lamp, and maintains switch-on of the aforementioned switch circuit during said first pulse signal to make the aforementioned power supply loop switch-on; and

a step which detects a first sampling signal on the aforementioned power supply loop by a detection determination circuit when the aforementioned power supply loop is in switch-on, and compares said first sampling signal with a predefined signal,

when said first sampling signal is larger than or equal to the aforementioned predefined signal, the aforementioned detecting method further includes:

a step which outputs a first high level signal by the aforementioned detection determination circuit;

a step which receives said first high level signal by the aforementioned detection result latching circuit, and outputs a second high level signal; and

a step which receives said second high level signal by the switch circuit and makes the aforementioned power supply loop switch-on by maintaining the aforementioned switch circuit in a conducting state.

[Claim 2]

The detecting method described in claim 1, when said first sampling signal is smaller than a signal of the aforementioned regulation, the aforementioned detecting method further includes,

a step which outputs the first low level signal by the aforementioned detection determination circuit,

a step which receives said first low level signal by the aforementioned detection result latching circuit, and outputs the second low level signal,

a step which receives said second low level signal by the aforementioned switch circuit, and maintaining an OFF state of the aforementioned switch circuit to cause the aforementioned power supply loop to remain an open state.

[Claim 3]

The detecting method described in claim 2, when the aforementioned power supply loop remains being an opened state, the aforementioned detecting method further includes,

a step which generates the second pulse signal by the aforementioned detection pulse generating module,

a step which receives said second pulse signal through the aforementioned detection result latching circuit by the aforementioned switch circuit, and changes an OFF state of the aforementioned switch circuit into switch-on again during said second pulse signal to make the aforementioned power supply loop switch-on again, and

when the aforementioned power supply loop is in switch-on again, a step which detects the second sampling signal on the aforementioned power supply loop by the aforementioned detection determination circuit, and compares said second sampling signal with the aforementioned predefined signal,

when said second sampling signal is larger than or equal to the predefined signal, the aforementioned detecting method further includes,

a step which outputs said first high level signal by the aforementioned detection determination circuit,

a step which receives said first high level signal by the aforementioned detection result latching circuit, and outputs said second high level signal, and

a step which receives said second high level signal by the aforementioned switch circuit and makes the aforementioned power supply loop switch-on by maintaining the aforementioned switch circuit in a conducting state.

[Claim 4]

The detecting method described in claim 3, when said second sampling signal is smaller than a signal of the aforementioned regulation, the aforementioned detecting method further includes,

a step which outputs said first low level signal by the aforementioned detection determination circuit,

a step which receives said first low level signal by the aforementioned detection result latching circuit, and outputs said second low level signal,

a step which receives said second low level signal by the aforementioned switch circuit, and maintaining an OFF state of the aforementioned switch circuit to cause the aforementioned power supply loop to remain an open state.

[Claim 5]

The detecting method described in claim 3, the period of the first pulse signal is between 10 microseconds and 1 millisecond and the period of the second pulse signal is between 10 microseconds and 1 millisecond.

[Claim 6]

The detecting method described in Claim 5, the time interval from the first pulse signal to the second pulse signal is (X + Y) (T / 2), wherein T is the period of the drive signal, X is an integer equal to or larger than zero, and 0 <Y <1 is satisfied.

[Claim 7]

The detecting method described in claim 3, the period of the first pulse signal is between 1 microsecond and 100 microseconds and the period of the second pulse signal is between 1 microsecond and 100 microseconds

[Claim 8]

The detecting method described in claim 7, a time interval from said first pulse signal to said second pulse signal is between 3 milliseconds and 500 milliseconds.

[Claim 9]

The detecting method described in claim 1, the step of comparing said first sampling signal with a predefined signal includes,

a step which compares the current value of the current flowing through the power supply loop with a specific current value.

[Claim 10]

The detecting method described in claim 1, the step of comparing said first sampling signal with a predefined signal includes,

a step which compares the voltage on the power supply loop with a reference voltage.

[Claim 11]

The detecting method described in claim 1, when said first sampling signal is smaller than a signal of the aforementioned regulation, the aforementioned detecting method further includes,

a step which limits current on the aforementioned power supply loop to less than 5MIU (Measurement Indication Units).

[Claim 12]

The detecting method described in claim 11, when the aforementioned power supply loop remains being an opened state by maintaining an OFF state of the aforementioned switch circuit, the aforementioned detecting method further includes,

a step which generates a second pulse signal by the aforementioned detection pulse generating module,

a step which receives said second pulse signal through the aforementioned detection result latching circuit by the aforementioned switch circuit, and changes an OFF state of the aforementioned switch circuit into switch-on again during said second pulse signal to make the aforementioned power supply loop switch-on again, and

when the aforementioned power supply loop is in switch-on again, a step which detects the second sampling signal on the aforementioned power supply loop by the aforementioned detection determination circuit, and compares said second sampling signal with the aforementioned predefined signal,

when said second sampling signal is larger than or equal to the aforementioned predefined signal, the aforementioned detecting method further includes,

a step which outputs said first high level signal by the aforementioned detection determination circuit,

a step which receives said first high level signal by the aforementioned detection result latching circuit, and outputs said second high level signal, and

a step which receives said second high level signal by the aforementioned switch circuit and makes the aforementioned power supply loop switch-on by maintaining the aforementioned switch circuit in a conducting state,

when said second sampling signal is smaller than the aforementioned predefined signal, the aforementioned detecting method further includes,

a step which limits the aforementioned current on the aforementioned power supply loop to less than 5 MIU.

[Claim 13]

The detecting method described in claim 1, the aforementioned detecting method is further,

a step which pulls up said first pulse signal to high-level voltage when the aforementioned detection pulse generating module receives a driving signal,

a step which feeds said first pulse signal back to a discharge path of the aforementioned detection pulse generating module, so as to conduct the aforementioned discharge path when said first pulse signal is pulled to the aforementioned high-level voltage, and

a step which pulls said first pulse signal to a low level voltage after the

aforementioned discharge path has been conducted for a predetermined time period.

[Claim 14]

The detecting method described in claim 1, at least a schmitt trigger of the aforementioned detection pulse generating module, the aforementioned detection result latching circuit, and two comparators of the aforementioned detection determination circuit are built into IC (Integrated Circuit).

[Claim 15]

The detecting method described in claim 1 which drives the aforementioned LED straight tube lamp with an AC signal applied to both ends of the aforementioned LED straight tube lamp.