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(54) **Lighting device with optical pulsation suppression by polyphase-driven electric energy**

(57) The present invention relies on polyphase alternating current power with phase difference or direct current power rectified from polyphase alternating current power to drive a common -electric-driven luminous body, or to separately drive adjacently installed individual electric-driven luminous bodies so that the pulsation of the outwardly projected light is reduced.

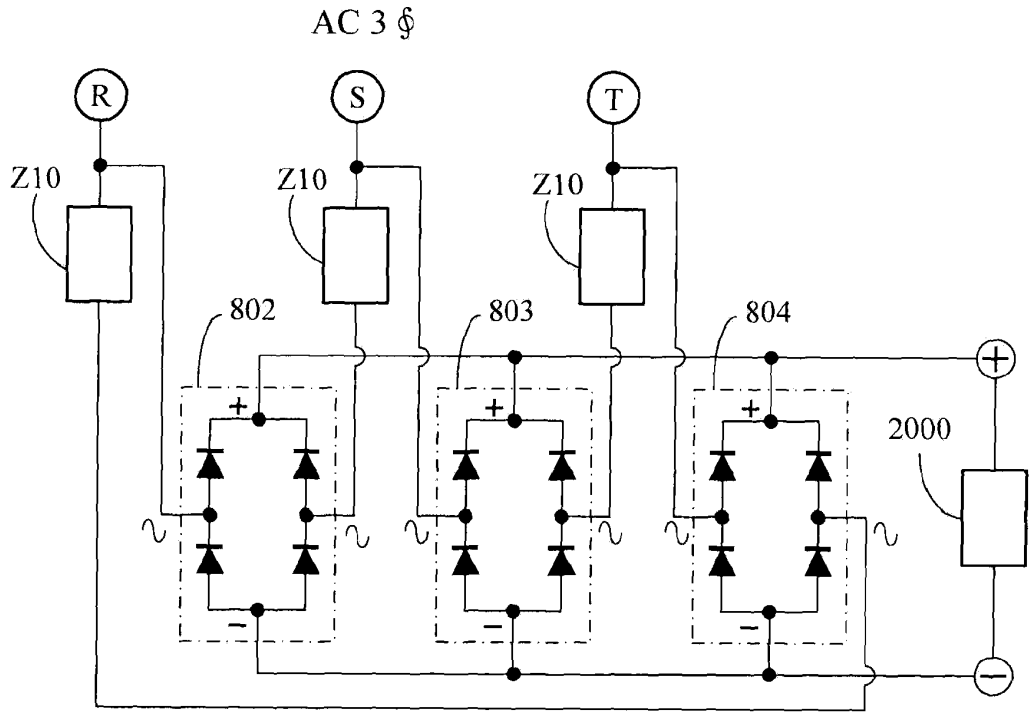

FIG. 2

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Description

BACKGROUND OF THE INVENTION

(a) Field of the invention

[0001] The present invention relates to a method of reducing the pulsation rate of the luminous brightness following the alternating current power voltage of an electric-driven luminous body which directly uses alternating current power by means of polyphase-driven electric energy.

(b) Description of the Prior Art

[0002] The deficiency of traditional alternating current lamps lies in their discontinuous light optical pulsation caused by alternating current power pulsation

SUMMARY OF THE INVENTION

[0003] The present invention relies on polyphase alternating current power with phase difference or direct current power rectified from polyphase alternating current power to drive a common -electric-driven luminous body, or to separately drive adjacently installed individual electric-driven luminous bodies so that the pulsation of the outwardly projected light is reduced.

[0004] According to a second aspect of the invention, a lighting device with optical pulsation suppression for use with a polyphase power supply comprises: a first input power line for connection to a first of three phases; a second input power line for connection to a second of three phases; a third input power line for connection to a third of three phases; a direct current electric luminous body; a first single phase bridge rectifier connected to the first input power line; a second single phase bridge rectifier connected to the second input power line; a third single phase bridge rectifier connected to the third input power line; a first current limit component connected in series with the first rectifier; a second current limit component connected in series with the second rectifier; and a third current limit component connected in series with the third rectifier, wherein each direct current output end of the rectifiers are connected to the direct current electric luminous body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005]

FIG. 1 is the optical pulsation oscillogram of the traditional single phase alternating current power or alternating current full wave-rectified direct current directly driving the electric-driven luminous body.

FIG. 2 is the circuit diagram in which each phase of the three-phase alternating current power being individually connected in parallel with a circuit device in series connected by the current limit component (Z10) and the alternative current terminal of single-phase bridge rectifier, then the direct current output terminal of the single-phase bridge rectifier of each phase being homo-polar connected in parallel for jointly driving the direct current electric-driven luminous body (2000).

FIG. 3 is the circuit diagram in which a circuit device in series connected to the current limit component (Z10) and the alternative current terminal of single-phase bridge rectifier being individually installed between the R, S, and T lines of the three phase four wire alternating current power and the neutral line (N) of the three phase four wire alternating current power, then the direct current output terminal of the single-phase bridge rectifier of each phase being homo-polar connected in parallel for jointly driving the direct current electric-driven luminous body (2000).

DESCRIPTION OF MAIN COMPONENT SYMBOLS

[0006]

2000: Direct current electric-driven luminous body
802, 803, 804: Single phase bridge rectifiers
a: Alternating Current power wave form
b: Wave form of direct current rectified from alternating current
c: Optical pulsation wave form of electric-driven luminous body
N: Neutral line
R, S, T: Three-phase alternating current power lines
Z10: Current limit component

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0007] The deficiency of traditional alternating current lamps lies in their discontinuous light optical pulsation caused by alternating current power pulsation.

[0008] The present invention relies on polyphase alternating current power with phase difference or direct current power rectified from polyphase alternating current power to drive a common -electric-driven luminous body, or to separately drive adjacently installed individual electric-driven luminous bodies so that the pulsation of the outwardly projected light is reduced.

[0009] FIG. 1 is the optical pulsation oscillogram of the traditional single phase alternating current power or alternating current full wave-rectified direct current directly driving the electric-driven luminous body.

[0010] As shown in FIG. 1, a is alternating current power wave form, b is wave form of direct current rectified from alternating current, and c is optical pulsation wave form of electric-driven luminous body; if the electric energy input is a bidirectional pulsating electric energy with a bidirectional non-sinusoidal wave, the improvement function is also the same.

[0011] FIG. 2 is the circuit diagram in which each phase of the three-phase alternating current power being individually connected in parallel with a circuit device in series connected by the current limit component (Z10) and the alternative current terminal of single-phase bridge rectifier, then the direct current output terminal of the single-phase bridge rectifier of each phase being homo-polar connected in parallel for jointly driving the direct current electric-driven luminous body (2000); as shown in FIG. 2, it mainly consists of:

-- Direct current electric-driven luminous body (2000): constituted by a solid state luminous body driven by two or more than two direct current powers, including foundational light emitting units configured by light emitting diodes or organic light emitting diodes and driven by the direct current power, or other solid state luminous bodies capable of being driven by the direct current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (804), then connected in parallel between the three-phase alternating current power line R and the three-phase alternating current power line T;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (802), then connected in parallel between the three-phase alternating current power line S and the three-phase alternating current power line R;
The current limit component (Z10) is connected in series with the alternative terminal of the single phase bridge rectifier (803), then connected in parallel between the three-phase alternating current power line T and the three-phase alternating current power line S;
--Current limit component (Z10): constituted by one or more than one of the following circuit structures, including:

1) At least one or more than one of the resistant impedance component, inductive impedance component and capacitor impedance component being connected in series, in parallel, or in series and parallel;
2) a fixed-current or limited-current control circuit configured by a solid state semi-conductive circuit for controlling the light emitting unit in an analog or chopping manner.

FIG. 3 is the circuit diagram in which a circuit device in series connected to the current limit component (Z10) and the alternative current terminal of single-phase bridge rectifier being individually installed between the R, S, and T lines of the three phase four wire alternating current power and the neutral line (N) of the three phase four wire alternating current power, then the direct current output terminal of the single-phase bridge rectifier of each phase being homo-polar connected in parallel for jointly driving the direct current electric-driven luminous body (2000); as shown in FIG. 3, it mainly consists of:
-- Direct current electric driven luminous body (2000): constituted by a solid state luminous body driven by two or more than two direct current powers, including foundational light emitting units configured by light emitting diodes or organic light emitting diodes and driven by the direct current power, or other solid state luminous bodies capable of being driven by the direct current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (802), then connected in parallel between the three-phase four-wire alternating current power line R and the neutral line N of the three-phase four-wire alternating current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (803), then connected in parallel between the three-phase four-wire alternating current power line S and the neutral line N of the three-phase four-wire alternating current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (804), then connected in parallel between the three-phase four-wire alternating current power line T and the neutral line N of the three-phase four-wire alternating current power;
--Current limit component (Z10): constituted by one or more than one of the following circuit structures, including:

1) at least one or more than one of the resistant impedance component, inductive impedance component and capacitor impedance component being connected in series, in parallel, or in series and parallel;
2) a fixed-current or limited-current control circuit configured by a solid state semi-conductive circuit for controlling the light emitting unit in an analog or chopping manner.

Claims

1. A lighting device with optical pulsation suppression by polyphase-driven electric energy, which relies on polyphase alternating current power with phase difference or direct current power rectified from polyphase alternating current power to drive a common -electric-driven luminous body, or to separately drive adjacently installed individual electric-driven luminous bodies so that the pulsation of the outwardly projected light is reduced; wherein each phase of the three-phase alternating current power being in-

dividually connected in parallel with a circuit device in series connected by the current limit component (Z10) and the alternative current terminal of single-phase bridge rectifier, then the direct current output terminal of the single-phase bridge rectifier of each phase being homo-polar connected in parallel for jointly driving the direct current electric-driven luminous body (2000), and it mainly consists of:

-- Direct current electric-driven luminous body (2000): constituted by a solid state luminous body driven by two or more than two direct current powers, including foundational light emitting units configured by light emitting diodes or organic light emitting diodes and driven by the direct current power, or other solid state luminous bodies capable of being driven by the direct current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (804), then connected in parallel between the three-phase alternating current power line R and the three-phase alternating current power line T;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (802), then connected in parallel between the three-phase alternating current power line S and the three-phase alternating current power line R;
The current limit component (Z10) is connected in series with the alternative terminal of the single phase bridge rectifier (803), then connected in parallel between the three-phase alternating current power line T and the three-phase alternating current power line S;
--Current limit component (Z10): constituted by one or more than one of the following circuit structures, including:

1) At least one or more than one of the resistant impedance component, inductive impedance component and capacitor impedance component being connected in series, in parallel, or in series and parallel;
2) a fixed-current or limited-current control circuit configured by a solid state semi-conductive circuit for controlling the light emitting unit in an analog or chopping manner.

2. The lighting device with optical pulsation suppression by polyphase-driven electric energy as claimed in claim 1, wherein a circuit device in series connected to the current limit component (Z10) and the alternative current terminal of single-phase bridge rectifier is individually installed between the R, S, and T lines of the three phase four wire alternating current power and the neutral line (N) of the three phase four wire alternating current power, then the direct current output terminal of the single-phase bridge rectifier of each phase being homo-polar connected in parallel for jointly driving the direct current electric-driven luminous body (2000), and it mainly consists of:

-- Direct current electric driven luminous body (2000): constituted by a solid state luminous body driven by two or more than two direct current powers, including foundational light emitting units configured by light emitting diodes or organic light emitting diodes and driven by the direct current power, or other solid state luminous bodies capable of being driven by the direct current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (802), then connected in parallel between the three-phase four-wire alternating current power line R and the neutral line N of the three-phase four-wire alternating current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (803), then connected in parallel between the three-phase four-wire alternating current power line S and the neutral line N of the three-phase four-wire alternating current power;
The current limit component (Z10) is connected in series with the alternative current terminal of the single phase bridge rectifier (804), then connected in parallel between the three-phase four-wire alternating current power line T and the neutral line N of the three-phase four-wire alternating current power;
--Current limit component (Z10): constituted by one or more than one of the following circuit structures, including:

1) at least one or more than one of the resistant impedance component, inductive impedance component and capacitor impedance component being connected in series, in parallel, or in series and parallel;
2) a fixed-current or limited-current control circuit configured by a solid state semi-conductive circuit for controlling the light emitting unit in an analog or chopping manner.

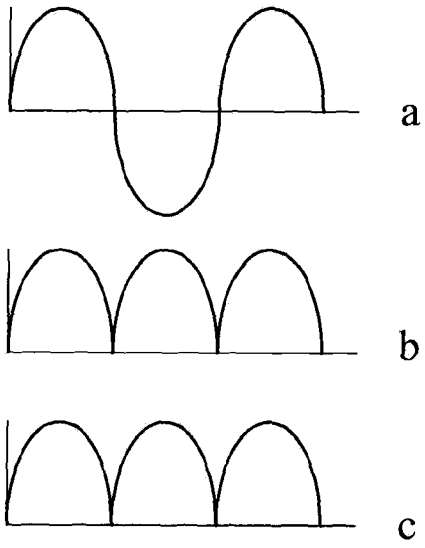

FIG. 1 (Prior Art)

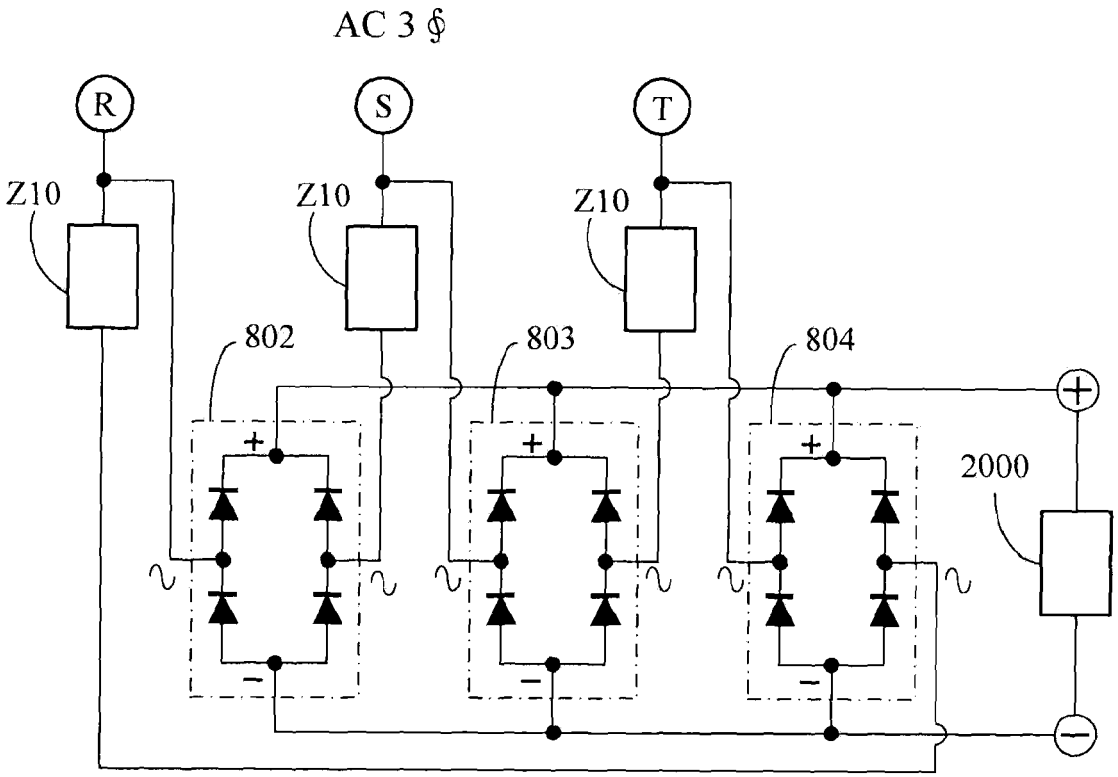

FIG. 2

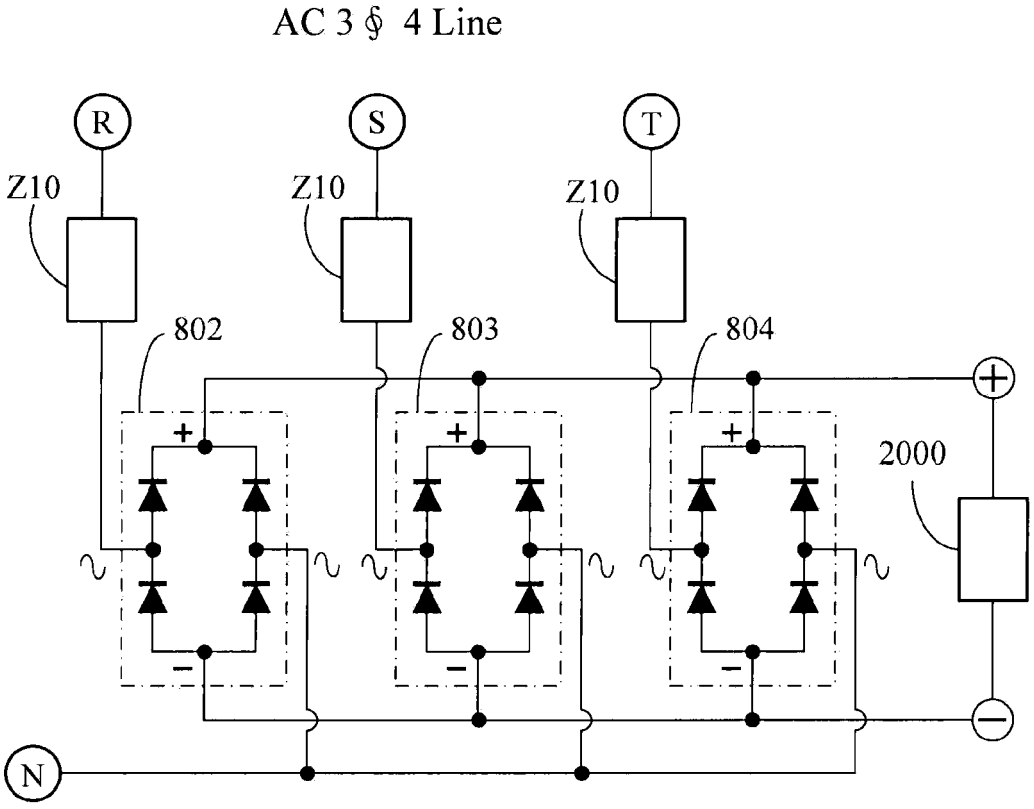

FIG. 3