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(54) **LED SPOTLIGHT**

(57) The present invention discloses an LED floodlight which is easy to mount, to replace and to maintain, and can be optionally provided with an independent sensor, and easy to stock and prepare. The LED floodlight comprising a lighting body (1) and a mounting bracket (2), the lighting body (1) is internally provided with a drive light source plate (5) provided with LEDs (4). The LED floodlight further comprises a sensor module (3) being detachably assembled with the lighting body (1) via a waterproof connector (15), wherein the sensor module (3) is electrically connected to the drive light source plate (5), the electric wires connecting the sensor module (3) and the drive light source plate (5) are passing through the waterproof connector (15), wherein the overall shape of the sensor module (3) and the light body (1) after being assembled is rectangular, wherein the sensor module (3) is provided with a power line (10), and the power line (10) is sealed to the sensor module (3) via a waterproof bolt (9), so that the sensor module (3) is waterproof. The invention may be widely applied in the field of LED floodlights.

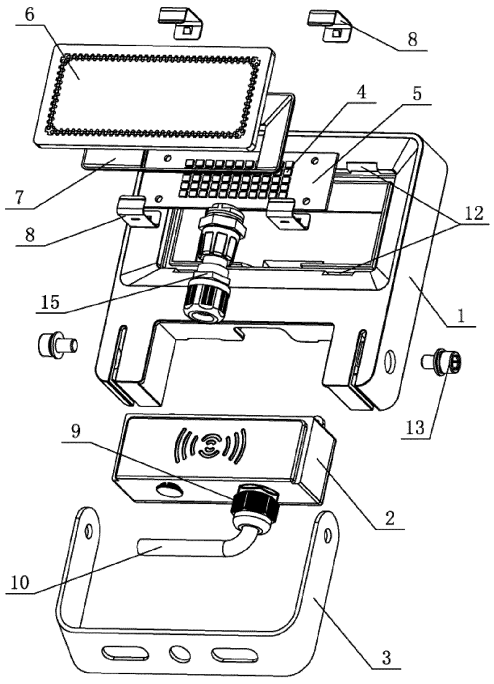

FIG. 3

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Description

TECHNICAL FIELD

[0001] The present invention relates to an LED lighting apparatus, in particular to an LED floodlight.

BACKGROUND ART

[0002] With the development of science and technology, the application of the LED lighting apparatus is increasingly wide, and the LED lighting apparatus has been taken as an illumination light source or a lamp. The floodlight is a kind of the existing LED lighting apparatus. And the sensor module of the existing LED inductor floodlights is generally arranged inside the lighting apparatus. An internal wiring is generally adopted, and the sensor module cannot serve as an independent optional device, also the sensor module and the power supply module cannot be separated completely. Therefore, the reliability is reduced, and the maintenance is troublesome. If any part is out of function, the whole lighting apparatus has to be replaced, which causes high use cost. In some other solutions in the prior art the sensor module of some existing LED inductor floodlights is arranged outside the lighting apparatus, which means it is separated from the lighting apparatus, and waterproof joints are adopted to connect the external wiring with the induction module. This kind of the LED lighting apparatus has a discordant and abrupt appearance and is inconvenient to install and use.

[0003] In addition, an existing LED lighting apparatus is generally provided with a waterproof rubber ring and a plurality of locking screw to realize water prevention of the panel, which causes time consuming working hours during manufacture and assembly, and is troublesome in terms of disassembly.

DISCLOSURE OF THE INVENTION

[0004] The present invention intends to overcome deficiencies of the prior art and to provide an LED floodlight which is easy to mount, to replace and to maintain, and can be optionally provided with an independent sensor, and is easy to stock and prepare.

[0005] The present invention adopts the following technical solutions: The invention comprises a lighting body being internally provided with a drive light source plate provided with LEDs, further comprises a mounting bracket and a sensor module being detachably assembled with the lighting body via a waterproof connector. The sensor module is electrically connected to the drive light source plate. The electric wires connecting the sensor module and the drive light source plate are passing through the waterproof connector. The overall shape of the sensor module and the lighting body after being assembled is rectangular. The sensor module is provided with a power line. The said power line is sealed to the sensor module via a waterproof bolt, so that the sensor module is waterproof.

[0006] Preferably, a light-transmitting plate and a reflector are arranged in the light emitting position of the drive light source plate inside the lighting body.

[0007] Furthermore, the LED floodlight of the present invention comprises a plurality of elastic buckles, and a plurality of embedding holes are arranged on the lighting body. The plurality of elastic buckles passing through the plurality of embedding holes are clamped on the lighting body on the back surface, and the light-transmitting plate is tightly clamped on the lighting body on the front side thereof.

[0008] Preferably, each of the elastic buckles is provided with a reverse hook in order to be clamped on the back surface of the lighting body to prevent slippage.

[0009] Preferably, a waterproof sealing ring is arranged at the joint between the light-transmitting plate and the lighting body.

[0010] Preferably, a plurality of heat dissipation fins are arranged on the back surface of the lighting body.

[0011] Preferably, two supporting legs are respectively arranged on both sides of the mounting bracket to be connected with the lighting body by two bolts, wherein the supporting legs are rotatably positioned with the lighting body by taking the bolt as a shaft

[0012] The present invention has advantageous effects as below because the present invention comprises a lighting body being internally provided with a drive light source plate provided with LEDs, a mounting bracket and a sensor module being detachably assembled with the lighting body via a waterproof connector, the sensor module is electrically connected to the drive light source plate, the electric wires connecting the sensor module and the drive light source plate are passing through the waterproof connector, the overall shape of the sensor module and the lighting body after being assembled is rectangular, the sensor module is provided with a power line, and the power line is sealed to the sensor module via a waterproof bolt, so that the sensor module is waterproof.

[0013] With the waterproof connector being detachably connected with the lighting body, the waterproof problem of the outdoor product is solved, and the sensor module is provided as an independent optional module. The invention enables independent modular production, and is convenient to assemble, furthermore the overall appearance is not discordant or abrupt when the sensor module is assembled with the lighting body as a whole, so that the customers can conveniently mount, replace and maintain the lighting apparatus and select combination for it, and for the manufacturers it is convenient to stock and prepare. This invention herein is easy to mount, to replace and to maintain, can be optionally provided with an independent sensor, and is easy to stock and prepare.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

Figure 1 is a perspective view from the frontside of a embodiment of the present invention;
Figure 2 is a perspective view from the backside of the embodiment;
Figure 3 is an exploded view of the embodiment;
Figure 4 is a front view of the embodiment; and
Figure 5 is a cross-section view of A-A in Figure 4 of the embodiment.

DESCRIPTION OF PREFERRED EMBODIMENT

[0015] As shown on Figure 1 to Figure 5, an embodiment of the LED floodlight according to the present invention comprises a lighting body 1, a mounting bracket 2 and a sensor module 3, two supporting legs are respectively arranged on both sides of the mounting bracket 2 to be connected with the lighting body 1 by two bolts 13, the supporting legs are rotatably positioned with the lighting body 1 by taking the bolt 13 as a shaft, so that it can be conveniently assembled and connected, and the light emitting direction can be conveniently adjusted, the lighting body 1 is internally provided with a drive light source plate 5 provided with LEDs 4, the sensor module 3 is detachably assembled with the lighting body 1 via a waterproof connector 15. The sensor module 3 is electrically connected to the drive light source plate 5, the electric wires connecting the sensor module 3 and the drive light source plate 5 are passing through the waterproof connector 15. The overall shape of the sensor module 3 and the lighting body 1 after being assembled is rectangular. The sensor module 3 is provided with a power line 10, and the power line 10 is sealed to the sensor module 3 via a waterproof bolt 9, so that the sensor module 3 is waterproof. A light-transmitting plate 6 and a reflector 7 are arranged in the light emitting position of the drive light source plate 5 inside the lighting body 1. The LED floodlight further comprises four elastic buckles 8, and four embedding holes 12 are arranged on the lighting body 1. The four elastic buckles 8 respectively passing through the four embedding holes 12 are clamped on the lighting body 1 on the back surface, and the light-transmitting plate 6 is tightly clamped on the lighting body 1 on the front side thereof. Each of the elastic buckles 8 is provided with a reverse hook 81 to be clamped on the back surface of the lighting body 1 to prevent slippage. A waterproof sealing ring 14 is arranged at the joint between the light-transmitting plate 6 and the lighting body 1. A special spring buckle design is adopted, it could be firmly pressed against the light-transmitting plate 6 and the waterproof sealing ring 14 by matching with the structure of the lighting body 1, so as to reach the purpose of waterproofing. In addition, the buckles 8 have an anti-loosening function, that means it can be dismantled only with the help of tools, which leads to reduction of material costs of the product and reduction of production and assembling working hours. A plurality of heat dissipation fins 11 are arranged on the back surface of the lighting body 1, it brings heat dissipation well under the condition of the small size of the product. By means of the multi-position waterproof design of the present invention, the waterproof level of the outdoor lamp of the IPX 6 level is fulfilled .

[0016] With the waterproof connector 15 being detachably connected with the lighting body 1, the waterproof problem of the outdoor product is solved, and the sensor module is provided as an independent optional module. The invention enables independent modular production, and is convenient to assemble, furthermore the overall appearance is not discordant or abrupt when the sensor module 3 is assembled with the lighting body 1 as a whole, so that the customers can conveniently mount, replace and maintain the lighting apparatus and select combination for it, and for the manufacturers it is convenient to stock and prepare. This invention herein is easy to mount, to replace and to maintain, can be optionally provided with an independent sensor, and is easy to stock and prepare.

[0017] The present invention can be widely applied in the field of LED floodlights.

Claims

1. An LED floodlight comprising a lighting body (1) being internally provided with a drive light source plate (5) provided with LEDs (4), wherein the LED floodlight further comprises a mounting bracket (2), **characterized in that**
   the LED floodlight comprises a sensor module (3) being detachably assembled with the lighting body (1) via a waterproof connector (15), wherein the sensor module (3) is electrically connected to the drive light source plate (5), the electric wires connecting the sensor module (3) and the drive light source plate (5) are passing through the waterproof connector (15), wherein the overall shape of the sensor module (3) and the lighting body (1) after being assembled is rectangular, wherein the sensor module (3) is provided with a power line (10), and the power line (10) is sealed to the sensor module (3) via a waterproof bolt (9), so that the sensor module (3) is waterproof.

2. The LED floodlight according to claim 1, wherein a light-transmitting plate (6) and a reflector (7) are arranged in the light emitting position of the drive light source plate (5) inside the lighting body (1).

3. The LED floodlight according to claim 2, wherein a plurality of elastic buckles (8) and a plurality of embedding holes (12) are arranged on the lighting body (1), wherein the plurality of elastic buckles (8) passing through the plurality of embedding holes (12) are clamped on the lighting body (1) on the back surface, and the light-transmitting plate (6) is tightly clamped on the lighting body (1) on the front side thereof.

4. The LED floodlight according to claim 3, wherein each of the elastic buckles (8) is provided with a reverse hook (81) to be clamped on the back surface of the lighting body (1) to prevent slippage.

5. An LED floodlight according to claim 3 or claim 4, wherein a waterproof sealing ring (14) is arranged at the joint between the light-transmitting plate (6) and the lighting body (1) .

6. The LED floodlight according to claim 1, wherein a plurality of heat dissipation fins (11) are arranged on the back surface of the lighting body (1) .

7. The LED floodlight according to claim 1, wherein two supporting legs are respectively arranged on both sides of the mounting bracket (2) to be connected with the lighting body (1) by two bolts (13), wherein the supporting legs are rotatably positioned with the lighting body (1) by taking the bolt (13) as a shaft.

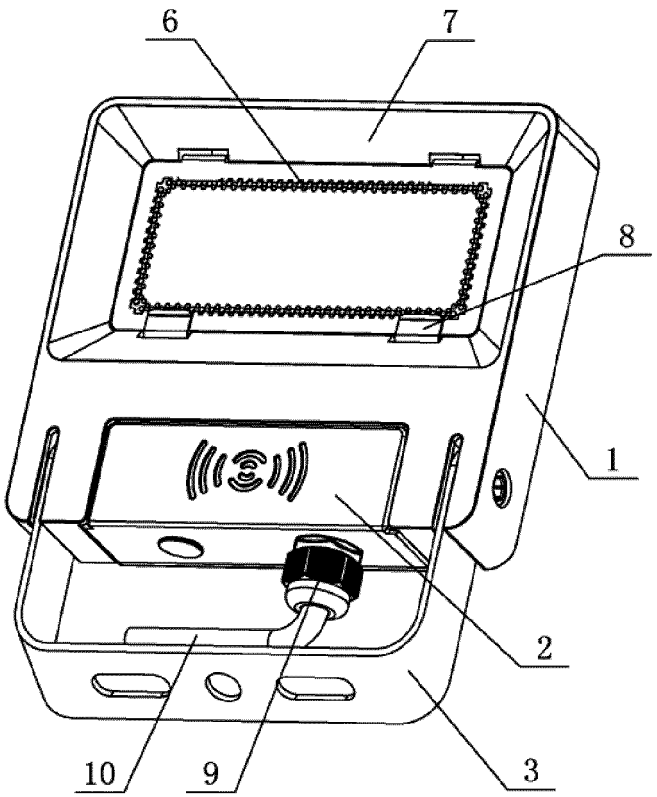

FIG. 1

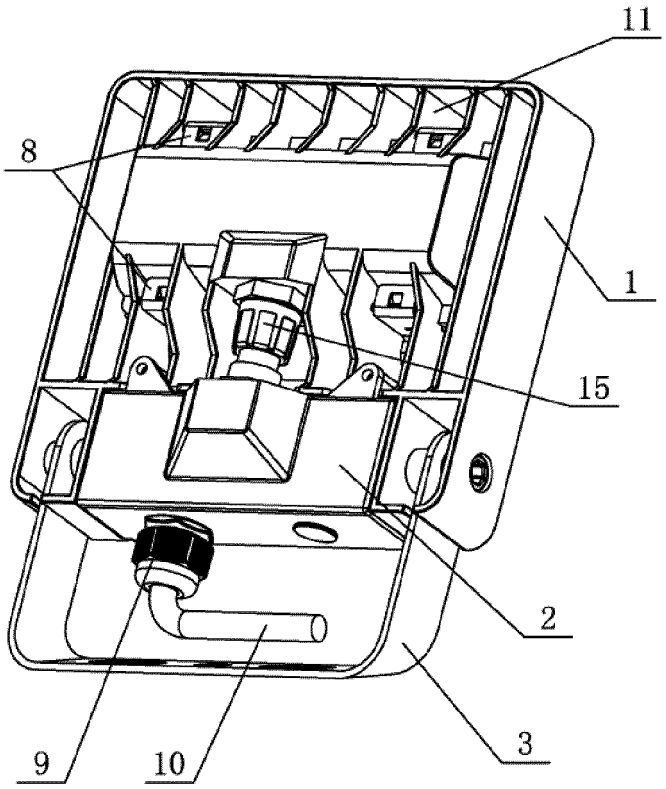

FIG. 2

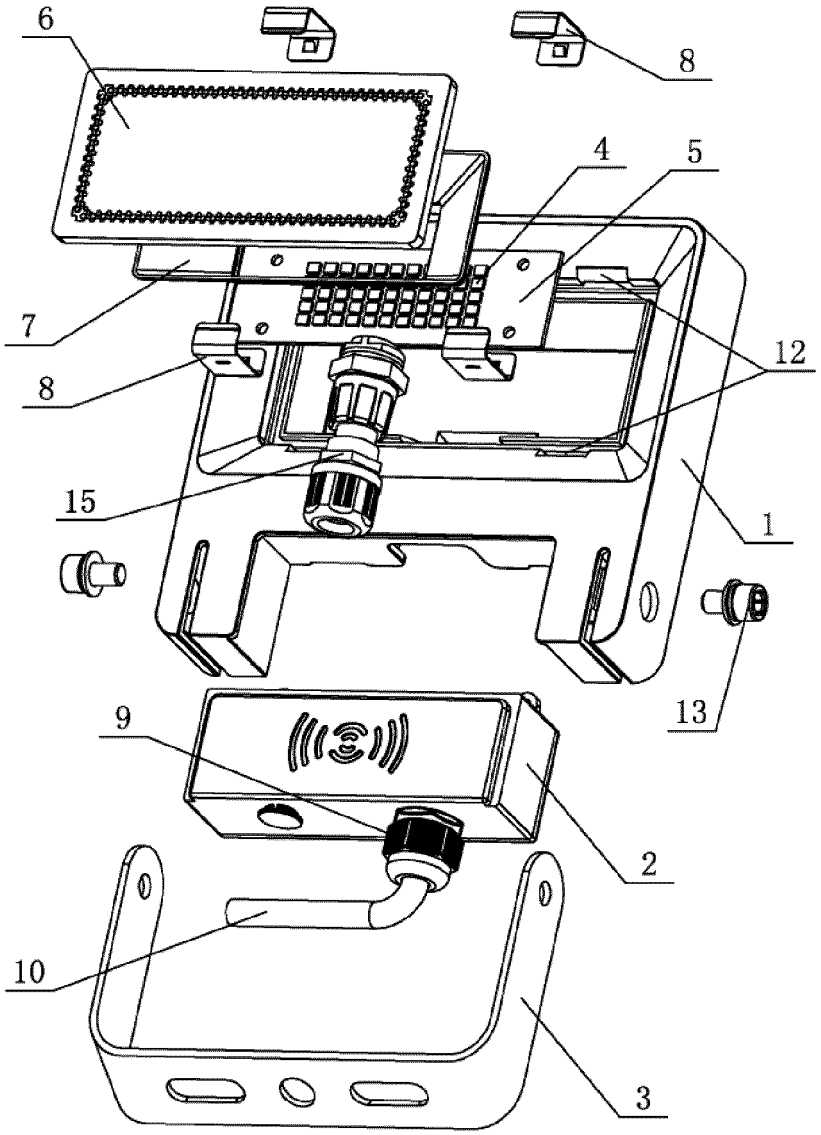

FIG. 3

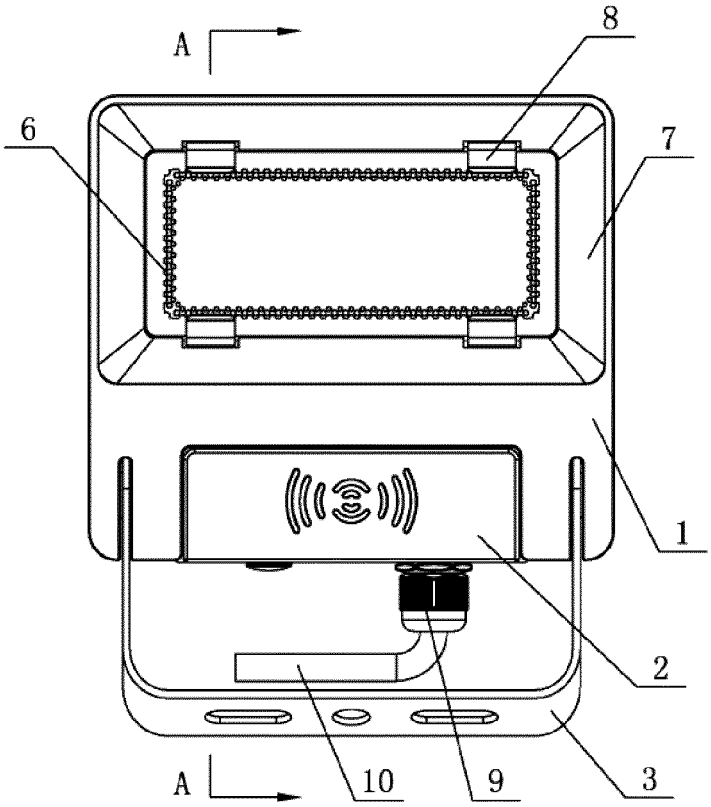

FIG. 4

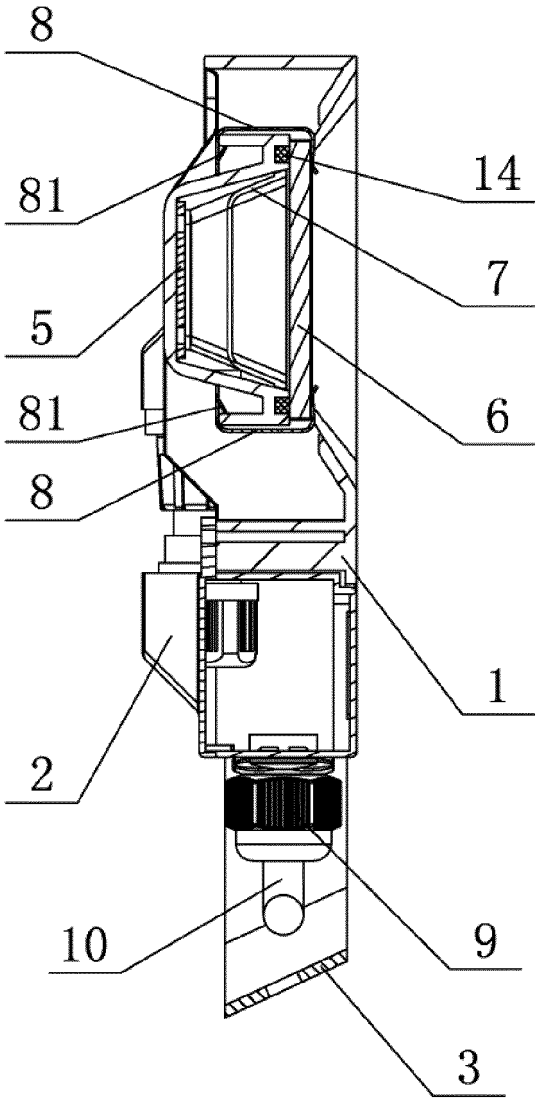

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2020/089902

A. CLASSIFICATION OF SUBJECT MATTER

F21S 8/00(2006.01)i; F21V 31/00(2006.01)i; F21V 23/06(2006.01)i; F21Y 115/10(2016.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F21S; F21V; F21Y115/-

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT; EPODOC; WPI; CNKI: 发光二极管, 投光灯, 泛光灯, 射灯, 探照灯, 感应, 控制, 拆卸, 拆装, 替换, 更换, 防水, 密封, LED, floodlight, projector, searchlight, induce, sense, control, disassembly, dismounting, demounting, replacing, renewal, waterproof, airproof, sealing

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 209484394 U (SHENZHEN HUATANGRUI ILLUMINATION ELECTRIC APPLIANCE CO., LTD.) 11 October 2019 (2019-10-11) claims 1-7	1-7
A	CN 206429958 U (JIANGXI ZHONGGUANG OPTOELECTRONICS TECHNOLOGY COMPANY LIMITED) 22 August 2017 (2017-08-22) description, paragraphs [0020] and [0021], and figures 1-5	1-7
A	CN 205402467 U (NINGBO FORLAND LIGHTING TECHNOLOGY CO., LTD.) 27 July 2016 (2016-07-27) entire document	1-7
A	CN 207674214 U (NINGBO RONGHUA LIGHTING TECHNOLOGY CO., LTD.) 31 July 2018 (2018-07-31) entire document	1-7
A	CN 207975621 U (XIAMEN JYG OPTOELECTRONIC CO., LTD.) 16 October 2018 (2018-10-16) entire document	1-7

☑ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search	Date of mailing of the international search report
17 July 2020	**13 August 2020**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088** **China**	Authorized officer
Facsimile No. **(86-10)62019451**	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2020/089902

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	CN 207921874 U (JIANGXI ZHONGGUANG OPTOELECTRONICS TECHNOLOGY COMPANY LIMITED) 28 September 2018 (2018-09-28) entire document	1-7
A	JP 2001272211 A (NIPPON SIGNAL CO., LTD.) 05 October 2001 (2001-10-05) entire document	1-7

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2020/089902

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 209484394 U	11 October 2019	None	
CN 206429958 U	22 August 2017	None	
CN 205402467 U	27 July 2016	None	
CN 207674214 U	31 July 2018	None	
CN 207975621 U	16 October 2018	None	
CN 202040630 U	16 November 2011	None	
CN 207921874 U	28 September 2018	None	
JP 2001272211 A	05 October 2001	None	

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