CLAIMS

[Claim 1] An optical module, comprising a housing, a pull ring assembly disposed on the housing, and an optical assembly and a circuit board assembly disposed in the housing, an optical interface and an electrical interface being formed at two opposite ends of the housing, wherein

the housing comprises a bottom wall and two oppositely disposed side walls formed on the bottom wall; a suspension arm accommodating groove is formed on each side wall; each suspension arm accommodating groove comprises a groove bottom, an upper groove wall, and a lower groove wall; and a travel limiting groove is formed on each lower groove wall;

the pull ring assembly comprises a ring, a suspension arm connecting portion and two oppositely disposed suspension arms, the suspension arm connecting portion connects the two suspension arms together at one end of the suspension arm connecting portion, the ring and the suspension arm connecting portion are connected at the other end of the suspension arm connecting portion; a handle used for unlocking in cooperation with an external mechanism, and a protrusion are disposed at an end portion of each suspension arm; and each protrusion is obliquely disposed from the suspension arm connecting portion with respect to a corresponding suspension arm;

each suspension arm is disposed in a corresponding suspension arm accommodating groove; each protrusion is disposed in a corresponding travel limiting groove; and the suspension arm connecting portion is disposed on an external surface of the bottom wall of the housing;

when the pull ring assembly moves with respect to the housing, each suspension arm is subject to limitation by a corresponding upper groove wall and a corresponding lower groove wall and moves left-right along a direction of a line connecting the optical interface and the electrical interface, and each travel limiting groove and the corresponding protrusion cooperate to limit a distance of the pull ring assembly moving left-right; and each upper groove wall, the corresponding lower groove wall, and the corresponding travel limiting groove together limit the

corresponding suspension arm from separating from the corresponding suspension arm accommodating groove,

wherein the optical module only comprises two suspension arms and two protrusions, the two suspension arms and the two protrusions are disposed in a one-to-one corresponding manner.

[Claim 2] The optical module according to claim 1, characterized in that the optical module comprises an elastic component; the suspension arm connecting portion is closely fit to the external surface of the bottom wall of the housing; the suspension arm connecting portion has disposed on it a window for the elastic component to pass through and a stop block correspondingly disposed from the window; an elastic component accommodating groove used for accommodating the elastic component is disposed at a location on the bottom wall of the housing corresponding to the window and the stop block; and the elastic component is disposed in the elastic component accommodating groove.

[Claim 3] The optical module according to claim 1, characterized in that the optical module comprises an elastic component; one of the suspension arms has disposed on it a window for the elastic component to pass through, and a stop block correspondingly disposed from the window; an elastic component accommodating groove used for accommodating the elastic component is disposed at a location on the groove bottom of the suspension arm accommodating groove corresponding to the window and the stop block; and the elastic component is disposed in the elastic component accommodating groove.

[Claim 4] The optical module according to claim 3, characterized in that an opening running through from the bottom wall of the housing to the suspension arm accommodating groove corresponding to the window is disposed on a corresponding side wall of the housing; the opening is obliquely disposed from the corresponding travel limiting groove with respect to the corresponding suspension arm accommodating groove; and the stop block on the corresponding suspension arm is disposed through the opening into the elastic component accommodating groove.

[Claim 5] The optical module according to claim 1, characterized in that a notch running through from the bottom wall of the housing to each suspension arm accommodating groove is disposed on a corresponding side wall; and each notch is disposed at a location near the corresponding handle and is oppositely disposed from the corresponding travel limiting groove on two sides of the corresponding suspension arm accommodating groove.

[Claim 6] The optical module according to claim 1, characterized in that the housing of the optical module comprises a first housing and a second housing fixed together to one another; and each suspension arm accommodating groove is disposed at a junction location of the first housing and the second housing and is on both the first housing and the second housing at the same time.

[Claim 7] The optical module according to claim 1, characterized in that each protrusion and the corresponding travel limiting groove are disposed near the corresponding handle.

[Claim 8] An optical module, comprising: a first housing, a second housing, a pull ring assembly, an optical assembly, and a circuit board assembly; the first housing and the second housing are assembled and fixed together to one another; the pull ring assembly is disposed outside the first housing and the second housing; the optical assembly and the circuit board assembly are disposed in the first housing and the second housing; and an optical interface and an electrical interface are formed at two opposite ends of the first housing and the second housing; wherein

the first housing and the second housing each comprises a bottom wall and two oppositely disposed side walls formed on the bottom wall, the two side walls of the first housing respectively correspond to the two side walls of the second housing; a suspension arm accommodating groove is formed on each side wall of the first housing and a corresponding side wall of the second housing; each suspension arm accommodating groove comprises a groove bottom, an upper groove wall, and a lower groove wall; and a travel limiting groove is formed on each lower groove wall;

the pull ring assembly comprises a ring, a suspension arm connecting portion and two oppositely disposed suspension arms, the suspension arm connecting portion

connects the two suspension arms together at one end of the suspension arm connecting portion, the ring and the suspension arm connection portion are connected at the other end of the suspension arm connecting portion; a handle used for unlocking in cooperation with an external mechanism, and a protrusion are disposed at an end portion of each suspension arm;

each suspension arm is disposed in a corresponding suspension arm accommodating groove; each protrusion is disposed in a corresponding travel limiting groove; and the suspension arm connecting portion is disposed on an external surface of the bottom wall of the first housing or an external surface of the bottom wall of the second housing; and

when the first housing and the second housing are fixed together and the suspension arms are assembled, each suspension arm is disposed in the corresponding suspension arm accommodating groove,

wherein the optical module only comprises two suspension arms and two protrusions, the two suspension arms and the two protrusions are disposed in a one-to-one corresponding manner.

[Claim 9] An assembly method for the optical module of any one of claims 1-7, comprising:

providing the housing, the optical assembly, the circuit board assembly, and the pull ring assembly, and assembling the optical assembly and the circuit board assembly in the housing;

packaging the housing; and

assembling, after the housing is packaged, the pull ring assembly outside the housing.

[Claim 10] The assembly method for the optical module according to claim 9, characterized in that when the optical module is the optical module of any one of claims 2 through 4, the step of assembling the pull ring assembly outside the housing comprises:

assembling the suspension arms of the pull ring assembly into the respective suspension arm accommodating grooves; and

assembling the elastic component into the elastic component accommodating groove through the window.

[Claim 11] The assembly method for the optical module according to claim 10, characterized in that the step of assembling the suspension arms of the pull ring assembly into the respective suspension arm accommodating grooves is assembling the suspension arms of the pull ring assembly into the respective suspension arm accommodating grooves from one side distant from the travel limiting grooves towards a direction closer to the travel limiting grooves.